

THE

Desert

M A G A Z I N E



AUGUST 1944

25 CENTS

Desert Tobacco Grows On Trees and Bushes

By MARY BEAL

TRUST an Indian to discover the useful qualities of the plants within his reach and to adapt them to his needs. It was the American native who originated the custom of smoking tobacco. Tribes of the Southwest, as well as other American tribes, smoked the dried leaves of the available wild tobacco species, known botanically as *Nicotiana*, a genus of the Nightshade or Potato family, which includes the various species grown commercially. The aboriginal use of tobacco was chiefly in sacrificial rites to propitiate the Great Spirit. Present-day Indians of the older generations who cling to ancestral traditions still have a reverent regard for these plants and use them in their religious ceremonies. Various tribes are reported to have chewed as well as smoked the wild tobaccos and some still do so.

The dried leaves were pulverized in special small mortars and when used for chewing, water was added, or a bit of fat or pine-nuts to give a pleasing flavor. No doubt they had tastes in flavoring just as do gum-chewers nowadays. Because the wild tobaccos are very strong, most users preferred to add other ingredients, thus producing a mild mixture, for both smoking and chewing. It is definitely known that several tribes had cultivated patches of certain species. Undoubtedly the most widespread of the desert species is

Nicotiana trigonophylla

Commonly called Desert Tobacco. Sticky and malodorous "in the green," but in the dried state quite desirable to native smokers. It sends up one to several erect leafy stems from a perennial root-crown, a foot or two high, each with several slender branches from the leaf axils. The herbage is bright green and glandular-hairy, the sessile leaves oblong to ovate with eared bases, the margins entire but apt to be undulate, 2 to 5 inches long, decreasing in size upward along the stem.

The loosely clustered racemes are nearly naked, the creamy or greenish-white flowers about an inch long, the corolla with a slender tube and constricted throat below a spreading limb a half inch or less wide, reflexed slightly as it ages. The flowers are open only during the daytime and may be found blooming at almost any time of the year, most certainly in April and May. Very common on canyon walls and rocky mesas and along sandy washes, adapting itself to low and moderately high elevations in all the California desert areas, through Arizona and New Mexico to western Texas and down into Mexico.

Nicotiana attenuata

Dubbed "Coyote Tobacco" by early prospectors, a name commonly in use at present. An annual species with the usual ill-smelling herbage, somewhat hairy and slightly glandular, the stems simple or branching, a foot or two high, in favorable situations sometimes twice that height, rising erectly from a flat, basal rosette of oval, petioled leaves, 2 to 6 inches long, the stem leaves narrower and decreasing in size upward. The many white or greenish flowers, from 1 to 1½ inches long with slender tube, and limb a half inch wide or less, open in the evening and close with the sunrise. Found blooming from May to November. Quite common over most of Arizona from moderate to high elevations, extending north to Utah, east to Texas, through much of California, favoring dry stream beds, washes and sandy flats.

Nicotiana bigelovii somewhat resembles *N. attenuata* but has a very limited desert distribution—the western Mojave desert. You'll recognize it by its larger more showy flowers, the shallowly-lobed corolla limb an inch or two broad and the tube sometimes nearly 2 inches long.



Tree tobacco is a conspicuous evergreen. Beal photo.

Nicotiana clevelandii

Another night-blooming annual, a foot or two high, with sticky-hairy herbage, the leaves ovate to lanceolate, 1½ to 5 inches long, the basal ones petioled, the upper nearly sessile. The whitish corolla is noticeably shorter than those of the preceding species, its tube ½ to ¾-inch long with a limb less than ½-inch broad, shallowly lobed and folding up when the sun shines. The white of the corolla is often suffused with violet and the linear calyx lobes are markedly unequal, the longer ones sometimes twice as long as the tube. It is found rather frequently along dry stream beds and sandy washes from low to moderately high altitudes in western Arizona and the Colorado desert, extending over the border into Lower California.

Nicotiana glauca

San Juan Tree, or Mexican Tobacco, or Tree Tobacco, deviates from the usual run of tobacco species. It is a conspicuous evergreen, loosely-branching shrub, 6 to 15 feet tall, becoming a small tree at times up to 20 feet. It seems to be as much at home on the desert as near the coast. Its slender graceful branches are generously supplied with handsome blue-green foliage, both leaves and stems quite hairless and noticeably veiled with a "bloom," and without the disagreeable odor of the foregoing species. It originated in Argentina and came to us by way of Mexico during the Mission period, brought along to make a new environment more home-like, having quite a vogue in early California gardens.

The ovate leaves are thick and smooth, 2 to 8 inches long on rather long petioles. The flowers grow in panicles terminating the branchlets, often drooping. The slender tubular corolla, 1½ to nearly 2 inches long, is yellow, and constricted at the throat just below the very narrow, slightly-flaring limb. The smooth ovate capsule is filled with many tiny brown rough seeds, so small they are like dust.

Having escaped from cultivation it has run wild and spread over much of California's and southern Arizona's warm dry areas and on eastward to Texas.

DESERT Close-Ups

• William Caruthers, who writes another Death Valley story for this issue, never has been satisfied to do one thing at a time. When he came to California from his native Tennessee in 1905, he worked on L. A. Examiner and started a much quoted pocket magazine, The By-stander, which became nucleus of The Classic Press, specializing in publishing house organs, booklets. At same time he edited The Rounder, first important L. A. theatrical magazine. This branched into writing of speeches for mayors on eastern seaboard, prosecutors in middle west, political arguments on both sides; booklets boosting subdivisions in St. Louis, fertilizers in Pittsburgh, baking powder and cereals. He then started fiction and fact writing for leading papers, magazines. After he discovered the desert about 1926 he no longer stayed home more hours than necessary to attend to business. His desert is "a stretch of land and sky where the nearest pavement is 100 miles away."

• Not content with telling Desert readers, in this issue, what Southwest land forms looked like when the earth was young, Jerry Laudermilk will tell them next what the weather would have been like if they had lived a couple of hundred million years ago. He calls it "fossil weather," for in a variety of fossil forms scientists have found the clues to the kind of weather the desert had before it was a desert.

• We've had to write many letters explaining to anxious readers John Hilton's absence from Desert's pages. His field report on the wartime state of California deserts, in June issue, was the first in many months. Now he has another, soon to be published, about George and Kenneth Holmes and their mining in the Castle Dome mountains of western Arizona. This is a picture of wartime mining which John feels is vital for the public to see. Besides being an informative article on lead mining, it is a warmly human story, from the fabulous "Holmes luck" to the Queen of Castle Dome.

• Richard Van Valkenburgh's next contribution to Desert is the story of the Navajo Squaw Dance, illustrated with drawing by Navajo artist Charles Keetsie Shirley and a map by Norton Allen. Although widely known by name, the Squaw Dance actually is little known by the public. Desert readers will be taken to one of these dances in a remote Arizona village and will learn from the tribesmen themselves its legendary origin and significance.

CREED OF THE DESERT

By JUNE LEMERT PAXTON
Yucca Valley, California

I may lack things that man has made,
To coax the traveler here;
But I have courage, peace and health,
The hopeless one to cheer.



Volume 7

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Number 10

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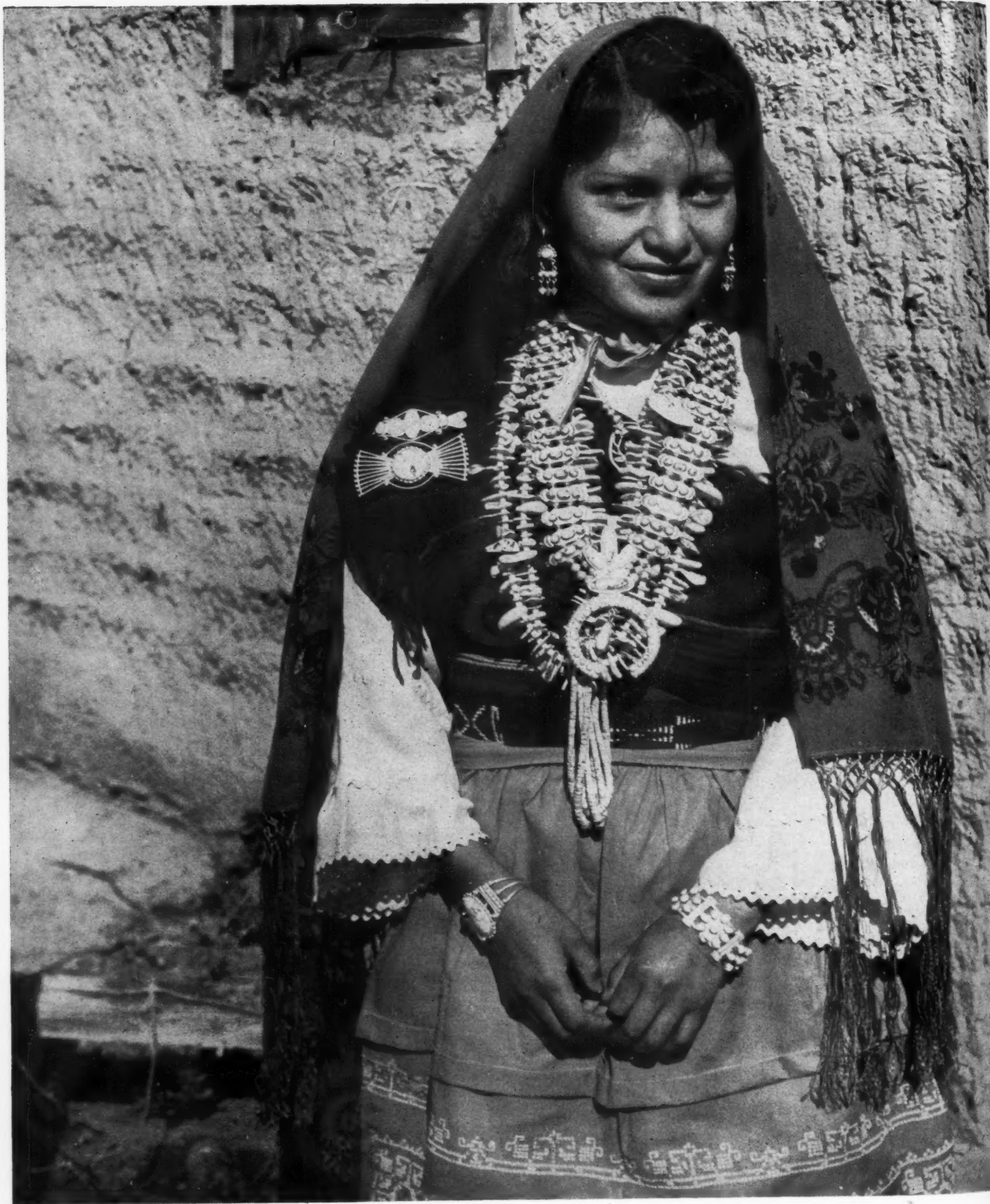
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Precious Beads of the Zuni

Photograph by Frashers
Pomona, California

Today Zuni Indians of New Mexico make their beads of shell and turquoise. They drill and polish the delicate olivellas from the Pacific Coast. The turquoise, from their own mines, they merely pierce for the string, leaving the cool blue stone in its natural form. But some of them still have bits of the precious antique beads of black, white and red. Often these are found only in the pendant loops of little beads in the ears of Zuni maids.

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This is a story about red beads—warm . . . glowing . . . velvety. The story could have been written about the ancient cliff dwellings in Zuñi land where they were found. Or it could have been written about the Indians who treasured them as heirlooms and used them in religious rites. Or again, it could have been an elaboration of the belief that the red beads were traded in prehistoric times by Indians who quarried the stone in Minnesota. But the real story of their origin, as discovered by Dave Howell of Claremont Colleges, is more fascinating than any of these. It is another of Jerry Laudermilk's "detective" stories, which leads Desert Magazine readers into an amazing field of science and takes them to the bottom of Grand Canyon to earth strata which have remained undisturbed since the beginning of the world.

Stone from Time's Beginning

By JERRY LAUDERMILK

BEADS of stone—black, white and red. These are the precious beads of the Zuñi. In olden times the ancients shaped the black ones from pieces of cannel coal or jet, the white from gypsum or calcite. The black and white stones are not rare in the Zuñi country of northwestern New Mexico, but it is only through art and craftsmanship that these common stones become beautiful gems. The red stone, however, has the added charm of mystery. The Zuñi call this red stone *d' boko* and say that it comes from the far south.

The beads of stone the Zuñi make no longer. Today they drill and polish the small thin beads of white olive-shell called *ko' bakwa* from the coast of California and bits of turquoise, *tbli' akwa*, from the mines of their own land. The latter they simply pierce for the string and leave the cool blue stone in its rough and natural form as if the presence of the neatly drilled hole in this hard stone transformed it from an unshaped natural object into a work of art. These beads of shell and turquoise are valued as beautiful ornaments, but of all their beads those of antique stone are prized the most.

The ancient beads are found only in the cliff dwellings, the mesa houses, camp sites and burial places of the Old People. Once found they become treasured things to be handed down as heirlooms or used in the colorful rites of their religion, or as stakes, to be lost or won at games of chance. The objects of red stone, once the dust and grime of centuries has been removed, show all the warm tones of color from pink to dark red. They sometimes glow with a deep and velvety shade like the color of hematite—a warm dusky red that has appealed to something dark and vital in human nature since men first began to notice beautiful things.

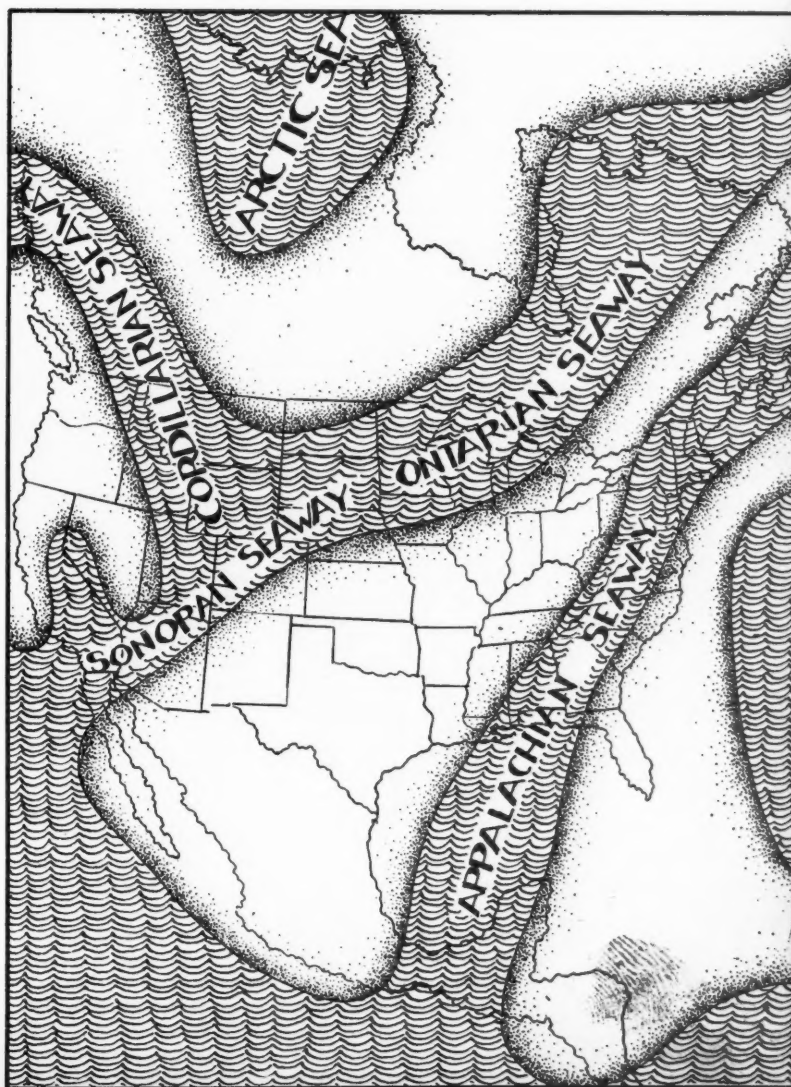
Like most of the ornamental stones which the Indians worked, this red stone is softer than flint but dense enough to take and hold its polish for a long time. It is a durable stone and responds in a friendly way to human companionship. It resembles and has all the outward qualities of another red stone, pipestone or catlinite, perhaps the most revered substance known to the Indians of the plains. This was the only proper material for the great calumet, the pipe-of-peace; about its source there is no mystery. Pipestone has been quarried in the region of southwestern Minnesota from times so remote that the facts of history have become lost in the poetry of legend. But it must have been many centuries ago since the red stone of Minnesota became scattered far and wide among the ancient people of North America.

United States and Canada in Pre-Cambrian time, about 400 million years ago. It was in the shallow Sonoran-Ontaric seaway that the red clay-like sediments washed down from the barren shores of the ancient land masses to form the raw material for the antique red beads of prehistoric Indians. Map redrawn by Laudermilk from C. Schuchert.

Ages ago, before the white man came, there was much trade between the tribes. Abalone and dentalium shell from the Pacific coast and obsidian from the Sierra Nevadas and the Rockies eventually reached the country of the mound-builders in the Mississippi valley, and artifacts hammered from Wisconsin native copper have been recovered from the cliff houses of the West.

Although these ancient Americans had only the dog for a pack animal and the trail was beset with constant danger, long trading journeys were not unusual. Objects made of catlinite have been found in Indian graves in New York and even at a village site in Georgia 1200 miles away.

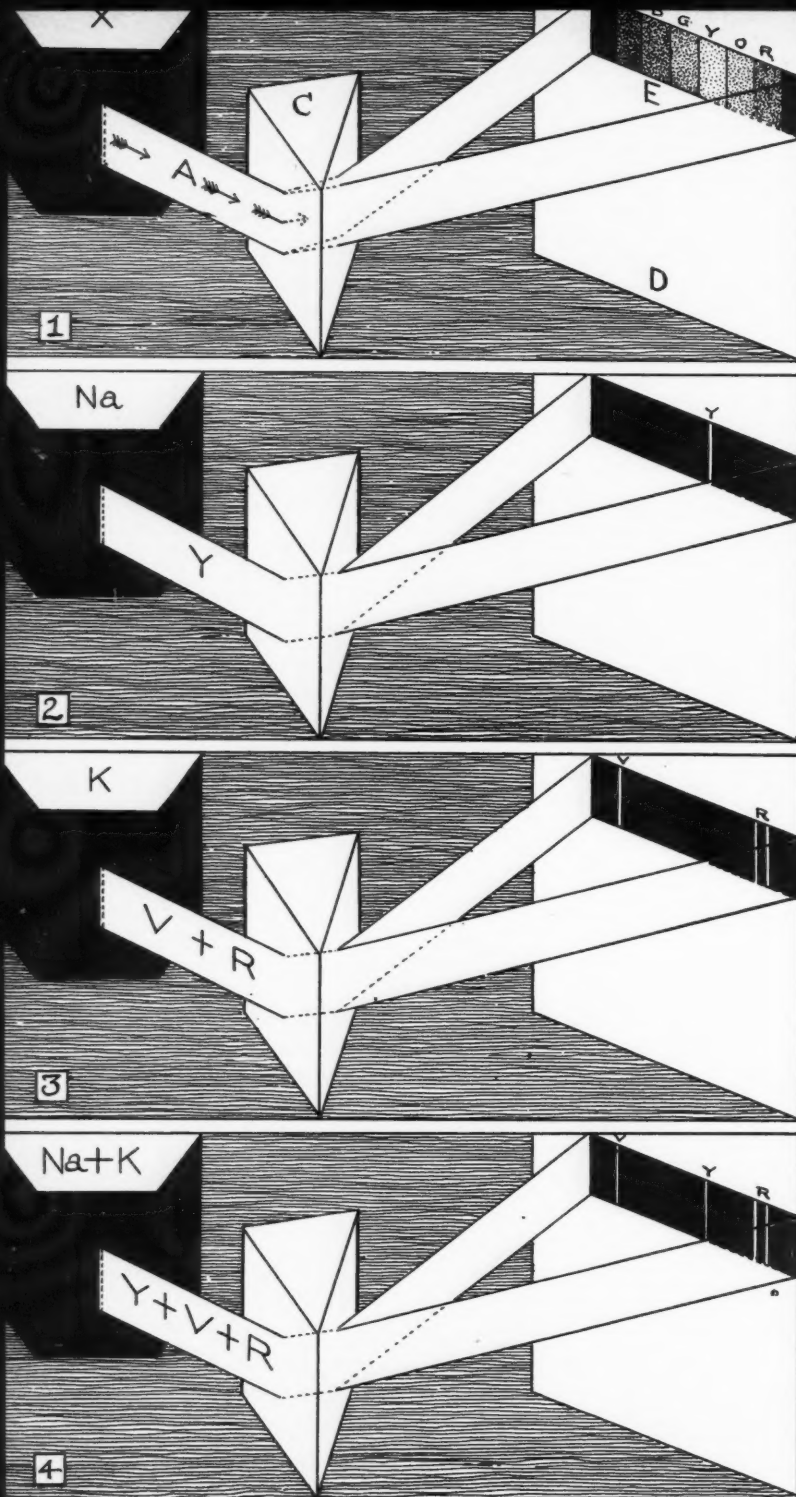
So it was natural that archeologists, working with the information they had, should suppose that the red stone artifacts found among the Indians of the Southwest and recovered from



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AUGUST, 1944



2—When instead of white light there is a trace of the element sodium (chemical symbol Na) in light source the light becomes yellow, Y. When this beam passes through the prism the spectrum shows only a narrow yellow line in the band. This corresponds to the same color of yellow in the continuous spectrum. Balance of band remains dark because in this case the light is monochromatic, containing no other wave length (color) than the yellow. 3—Light from a source containing traces of potassium (symbol K) is passed through prism and shown to be made up of two sets of wave lengths, one in the violet and two in the red. Rest of band remains dark because there are no other colors in this spectrum. 4—Light from a source containing both sodium and potassium Na and K will show both sets of lines, the yellow of sodium and violet and red of potassium. Mixture actually is analyzed by the prism. Same principle holds true for nearly all other elements.

How the spectroscope works: 1—Beam of white light A which is a mixture of all wave lengths (colors) from source X is projected through glass prism C onto a screen D. Prism sorts beam into ribbon of component colors E. Colors fall into definite order from violet at one end to red at the other. This is the continuous spectrum of white light.

the prehistoric ruins all should have come from the northern or Minnesota locality originally, either by direct trade or by passage from tribe to tribe until they finally reached the West.

This was the way things stood until about four years ago when Dave Howell of Claremont Colleges in California decided that it was about time for somebody to do a bit of geo-detecting on the subject of the red stone from the West. He used one of the most efficient means at an investigator's disposal — spectrographic analysis.

It is a curious fact and one that has been known for a long time, that nearly all the elements can be detected in extremely small amounts by examining the spectrum of the light produced from the incandescent gas when the element is heated to an excessively high temperature. The principles involved are broadly about like this:

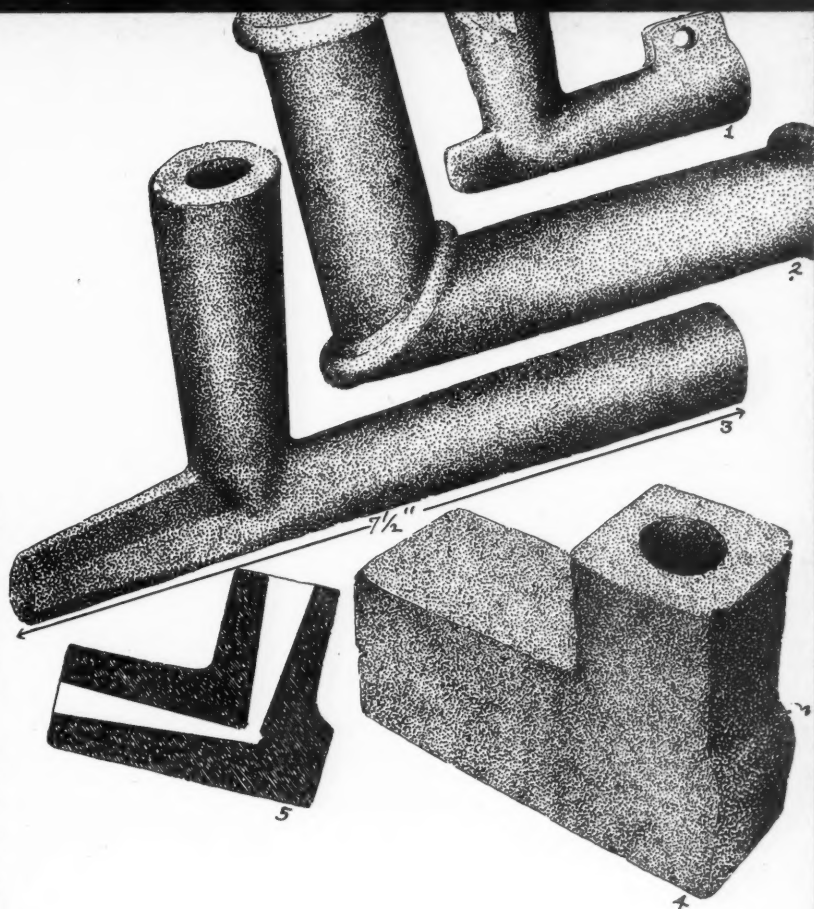
If sunlight, the light from an electric arc or any other white light is passed first through a narrow, vertical slit in some opaque shield, then through a glass prism and finally upon a white surface in a dark room the light will be spread out into a ribbon of rainbow colors from red at one end to violet at the other. This results from the fact that the white light, which actually is a mixture of all the colors or wave lengths, has been split up or sorted out in its component parts; this is the continuous spectrum of white light.

Now, if a particle of one of the elements is heated hot enough to be transformed into an incandescent gas and shine by its own light, then the prism tells a different story. Only a few light waves of certain wave lengths or colors will be emitted and these will appear as colored lines in an otherwise dark or nearly dark spectrum. For instance, if instead of sunlight we use a colorless flame like that of burning alcohol practically no light will be thrown on the screen or white surface. But if, now, some compound of the element sodium, such as ordinary table salt, is sprinkled in the flame, this becomes intensely yellow and the ribbon of light that you would expect to be seen on the white screen will not be there—it still will be dark except for one section. In the otherwise dark ribbon a narrow band of yellow (actually two bands but so close together they look like one) will show in the same position it occupies in the spectrum of white light. This is the typical sodium line (or lines) and indicates the presence of this element whenever it appears. The test is so sensitive that one three-millionth of a milligram can be detected.

Suppose we vary the experiment by using a compound of the other common alkali, potassium. This time, if we look close, we see two lines in the extreme red end of the dark spectrum and one line in the violet. This potassium reaction is not so delicate as the one for sodium but it is delicate enough to detect one one-thousandth of a milligram. If we mix both the sodium salt and the potassium salt then both sets of lines will appear. So it goes for practically all the elements: iron, silicon, aluminum, calcium, magnesium, barium, boron, etc. All have characteristic signatures in the form of their line spectra, which are detected by using a delicate piece of optical apparatus called a spectroscope or spectrograph.

In precise spectrographic work the spectrum generally is photographed and the plate examined at leisure since the camera can reveal lines, especially those in the ultra-violet and infra-red which the eye cannot detect. So if a sample of material of unknown composition is examined spectrographically a complete analysis can be made and the chemical composition of the substance determined. This method requires a far tinier sample

Calumets and pipes of red pipestone or catlinite from northern, or Minnesota locality. 1—Small pipe, deep red stone, metal inlay on bowl. 2—Large calumet (peace-pipe), mottled red pipestone. 3—Deep cherry red calumet. 4—Pipe in process of manufacture. Holes for bowl and stem have been drilled. Outside is still to be shaped. 5—Section showing proportionate sizes of openings for stem and bowl. Calumet, 2, was smoked at conclusion of treaty between Sioux under Chief Spotted-tail and the whites at Fort Laramie, Wyoming, sometime between 1870 and 1878. Figures from specimens in Claremont Colleges Museum.



than would be needed in ordinary chemical tests. By carefully controlling the time of exposure, amount of sample used and several other details, an experienced spectroscopist can estimate rather closely from the intensity of the lines whether any particular element is present in large, medium, small, very small amounts or traces. In many cases the sample to be analyzed need not be larger than a dot made by a lead pencil. In fact, sometimes the amount of material that it takes to make up a pencil dot is just a nice amount to work with.

Since such small amounts of sample are required an analysis can be made of part of some valuable object by using a tiny scraping too small ever to be missed. In this way one can have an article of jewelry "finger-printed" spectrographically from only so much sample as would be removed by scratching a corner of a jewel on the tip of a carbon rod. The plate then can be filed away for reference and if at a later date the stone should be stolen and cut up into smaller pieces, a spectrographic examination of a suspected stone may tell conclusively whether or not it is part of the original.

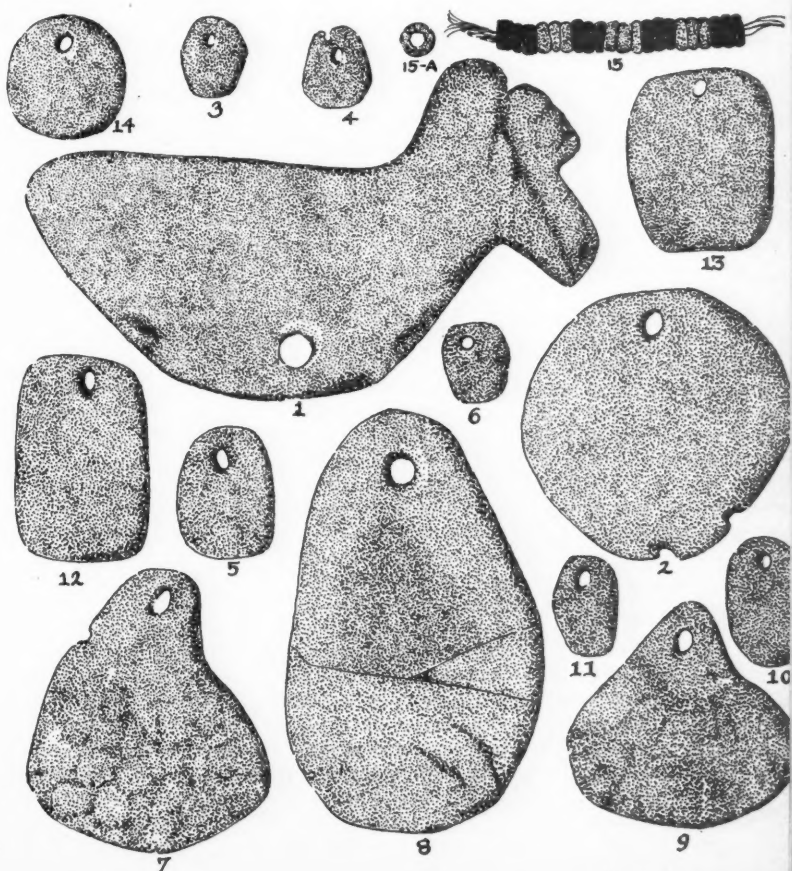
So Dave Howell had a very delicate means of detection at hand when he began work on the red stone artifacts in the museums throughout the country. Since he was not only a spectroscopist but also interested in archeology and the subject of jewels and gems in general, he knew exactly what the problems of his campaign would be before he began.

Some of the objects first examined were bowls of calumets, tubular pipes, necklaces, pendants and other objects known to be made of northern catlinite or pipestone from Minnesota, South Dakota and Wisconsin. The spectrographic plates of each specimen were carefully filed away for comparison with another set of spectrograms of red stone artifacts from the Southwest. These were such things as beads, rings, pendants, polished stone cylinders, tubular pipes, nose-plugs (ornaments to be worn in the septum of the nose), earrings, etc.

Results of the comparisons show that while the general chemical composition of both sets of artifacts was the same, that is, they consisted mainly of silica, aluminum and iron with smaller amounts of calcium, magnesium, sodium and potassium and still smaller amounts of rarer elements, there was a great difference in one respect—the presence or absence of the alkalies, sodium and potassium. In the northern samples potassium was abundant and sodium extremely rare or absent altogether; in the western samples the opposite was true. This alkali ratio and the amounts of certain other elements such as copper, silver, calcium, stron-

tium and barium served to distinguish between the two main types of artifacts but a third set of western artifacts, while definitely of the southern or western type, failed to fall into either category. I'll have more to say about this group later.

Dave's next step was to determine the source of the raw material of each type of red stone. For the northern samples this was easy. Fresh samples of rock taken from the Minnesota and Dakota quarries showed them to have the same composition as the northern artifacts. The location of the source of the southern material required much searching to find. Finally, the outcrop which had the same composition as the western artifacts was



Prehistoric red stone pendants from southwestern United States. Scale may be determined from No. 14 which is almost exactly half an inch in diameter, others in proportion. Figures are redrawn and adapted from Reports of the Bureau of American Ethnology and Annual Reports of the Smithsonian Institution. Numbers 1 and 2 from southwestern Colorado, B.A.E. Bulletin 96, 1930, pl. 53. Numbers 3 to 11 from Arizona, B.A.E. Bulletin 100, 1931, pl. 41. Numbers 12, 13, 14 from Arizona, Ann. Rep't. Smith. 1901, pl. 96. Beads from B.A.E. Bulletin 126, 1940, pl. 50.

GLOSSARY

INFRA-RED—Light waves of a wave length too long to be perceived by the human eye, coming before the red of the spectrum.

PRE-CAMBRIAN TIME—A division of geologic history just before the Cambrian. Also called the Proterozoic era. Age of greatest iron ore making and early forms of life. It includes about 25 per cent of all geologic time.

RADIOLARIA—A type of microscopic one-celled animal of the lowest order. They generally have a skeleton or shell of silica.

SPECTROGRAPH—A scientific instrument for making precise measurements of the positions of lines in the spectra of the elements and compounds. Generally a camera is attached for photographing lines in the ultra-violet. Its general structure is on the principle shown in the diagram on page 6. Frequently there is a finely ruled mirror called a diffraction grating used in place of the prism.

SPECTRUM—The image formed when a beam of light or radiant energy is subjected to dispersion so that its rays are arranged in a series in the order of their wave lengths. Thus by causing white light to pass through a prism a spectrum is obtained in which the colors form a series, from red through orange, yellow, green and blue to violet.

ULTRA-VIOLET—Light of a wave length too short to be perceived by the human eye, lying beyond the violet of the visible spectrum. It is thought that certain snails and a few other low organisms may be able to perceive certain wave lengths in the ultra-violet.

located near Del Rio, Arizona, a station on the Phoenix branch of the Santa Fe about 29 miles north of Prescott. It was largely a matter of sheer good luck that Dave found this outcrop. This came about through the accidental meeting with a cowboy who knew of the whereabouts of a deposit of the type of rock Dave described.

The Del Rio source apparently had been worked by the prehistoric inhabitants of that part of Yavapai county. About a thousand yards from the outcrop Dave found the ruins of a large stone dwelling of the mesa or detached type. Much red rock had been carried from the outcrop to the house evidently for the purpose of working it up in more convenient surroundings.

The artifacts of the non-conforming type indicate another interesting feature of this case. Obviously, since they were not of the northern type but were of the southern type in their general composition although differing in important details, a third, and at present undiscovered source of the red stone was available to the prehistoric ornament makers. Perhaps this is one of the rumored but uninvestigated deposits of the Mormon Lake region, and it is said that in the very bottom of Grand Canyon at one place at least, the red stone occurs in place in the old strata where it has remained undisturbed since the beginning of the world.

The geologic history of this red stone, red pipestone or as Dave proposes to distinguish the southern stone, red shale, is so strange as to be fantastic. It is one of the oldest rocks on earth. Most of the extremely ancient sediments have been subject to every possible sort of change nature has at its disposal—heat, pressure, solution and chemical action all contribute to the obliteration of the original material as it was laid down. With the red stone this has not been so. It has quietly grown old without

undue excitement, aging in place. Apparently what took place was this:

During the Pre-Cambrian time, about 400,000,000 years ago at least, the face of the earth was altogether different from the one we see on the maps. It was a strange world everywhere but it is enough to fix our attention on the North American continent alone. From the southwest a long strip of sea, in places more than 500 miles wide, extended from the locality of Southern California northeasterly clear across the continent to as far as Labrador.

This was the so-called Ontaric sea. It was shallow and so far as geologists know today the only forms of life in those waters were sponges, tiny little organisms called radiolaria and vast masses of an algal vegetation that grew abundantly in coral-like reefs. The sullen waters of this early sea washed the shores of continents that were barren of life, vast wastes of granite, coarse sand and dreary deserts of disintegrated rock. There was no soil on any of this land because as yet there were no plants to break up the rocks through the chemistry of their roots. All was a rough, unfinished solitude tense with the promise of uncreated things to come, a strange but meaningful desolation like a surrealist's dream.

The only changes in this landscape were those brought about through the forces of mechanical destruction and inorganic chemical change in a land which probably reeked with mineral salts and perhaps sulphuric acid from the oxidation of pyrite in the young crushed rock. The climate appears to have been for the most part, mild. But during some part of the Pre-Cambrian the glaciers covered the land in places and then retreated again to their fortresses about the polar caps to rest and advance again from time to time after thousands of years in an obscure rhythm they have held ever since.

For ages these granite wastes remained the same, showing only such changes as would be made by torrents of rushing water and the avalanche. Then down under the earth, raw, terrible forces began to move. Enormous fissures opened and hot lava poured out over thousands of square miles of ground in glowing sheets. The earth's surface began slowly to bend and fold in places and mountain ranges were upheaved where level plains had existed before.

Age followed on the heels of age like vast grey phantoms hurrying forward through the mist of time. The mountains grew cold and towered with snow clad tops. Then they began to crumble before the relentless assaults of the weather until they were worn down again to the primal granite of their very roots to make a plain once more. And again from their wreckage new ranges were formed and these too were worn away.

The chemical and mechanical breaking up of the feldspars of the original granites of these new lands released part of the quartz to be spread out over the ground and carried into the seas as sand. Part of the silica in the feldspars dissolved in the water and went to enrich the water of the oceans and be utilized by the sponges for their skeletons of flint. But the most important feature in connection with this story of the red rock of the ancients is that most of the aluminum in the feldspars remained, but changed now to aluminum silicate, a soft and waxy clay containing much iron, perhaps a red clay of fine texture. This clay too was transported to the shallow seas and slowly deposited in thick beds. Sand, which became sealed together grain to grain by dissolved silica formed dense, overlying strata of hard rock, the Sioux quartzite of the north and the Mazatzal quartzite of Arizona. These lids of solid rock locked away the clay beds for countless ages while they lay undisturbed. Slow and relatively mild chemical changes took place in the clay to transform it into a totally new type of rock—the pipestone and red shale of today.

So this ancient red stone, which had its beginning before the appearance of any life on land, lay waiting between the quartzite strata until man finally appeared on the scene to dig it out of the ground and fashion it into beautiful things, the calumet and the precious beads of the Zuñi.

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ZINE



"Waltz that girl behind you" is just one quick maneuver likely to be called in any of several square dances. It also is the name applied to a specific square, in which it is a dominant call. Here Lloyd Shaw's group go through its steps in Central City, Colorado.

Swing yore partner round 'n round

It was up in the Arizona range country, under the Tonto Rim, that Oren Arnold learned about square dancing. It was a wedding party that Uncle Dan took him to—men wore cowboy clothes; ladies were lovely in floor-length dresses of the 1880s. Peculiar Haines, past 75, called out the rhythmic commands that kept the dancers moving to "form that Arizona Star again." Now Oren has become a confirmed square-dancer. Whether the fiddle brings "sets on the floor" at a remote ranch house or in the elite Westward Ho of Phoenix, he says a square dance is one place where you cannot take your income tax worries, your business or family affairs. It's graceful and rhythmic, it's wholesome and joyous—and it's easy to learn. Oren gives you Lesson Number One.

By OREN ARNOLD

HERALDIC sounds of good-times-a-brewin' were drifting down the canyon to us even before we parked the car, and Uncle Dan O'Hara, my host for the evening, turned to me and said, "They've already started; that there's the Arizona Star." We puffed up the hill and pushed right on into the big ranch living-room, knowing we'd be welcome.

A rock fireplace big enough to stand in was at one end of the room, and its blaze made dancing shadows everywhere. In-

dian blankets hung on the walls beside an austere picture of grandma in a golden frame. A rifle rested in deer antlers, and doors had been burned with real branding irons. The guests already arrived before us were a colorful part of the picture. Cowboy clothes was the general costume of the men, but every lady was lovely in floor-length dress from the style of 1885. Nobody was self-conscious; sheer beaming happiness shone from all.

A four-piece band, cowboy species, was

singing a heavily rhythmic "Oomtidy boom and a oomtidy boom" while four gay couples did intricate maneuvers in the center of the room and 25 or 30 more looked happily on. Everybody was smiling. For this was an old-time square dance, being enjoyed by the sophisticates of 1944. One of those dancing couples was born in 1871 but the honoree this evening was a little cowgirl aged 17. We were all gathered to celebrate her wedding night, and when Uncle Dan dragged me wearily away

"Grand right and left" and "grand right eight" are two calls for the same maneuver. It is a weaving in and out, men going one direction, women the other, hand to hand alternately right and left. When the man meets his partner he gives her a swing and promenades home.

at four o'clock next morning the celebration was still going on.

Square dancing — specifically, the squares and rounds, the pattern dances of the pioneer days—not only have been preserved in the cowboy country but are enjoying a grand revival, one that already has spread to other parts of the nation.

This is far more significant than one might think. It means that a depth of goodness has been maintained through all our years of political adolescence. It means that the social level of rural people is exceptionally high, is one of this nation's most important assets along with her scenic marvels and her opportunities for industrial and commercial growth. But to un-

Docey Doe club dancing the Arizona Star.



derstand that you must understand square dancing.

It is not to be confused with the conga, the samba, the helicopter hop, or any of the other new dance steps that momentarily catch the city kids' fancy. Square dancing is superbly graceful and wholesome in every way, with not even a remote hint of vulgarity. It is the dancing held proper enough for your grandmother and mine. The actual patterns are comparable to some of the intricate things we see chorus girls do on stages or in floor shows—indeed many of their best modern numbers are lifted bodily from the square dance routines.

Uncle Dan O'Hara pointed out some of these details that night in the ranch living-room, in the heart of the cattle range under the Tonto Rim.

"Any person, sound of body, can do that Arizona Star," said he. "Now you just take and listen to what that caller is a sayin'."

I took and listened. The caller was named Peculiar Haines—and was called Peck. He was older than Uncle Dan, which means he was past 75, and he looked for all the world like a ranch edition of Santa Claus. Through his whiskers, in perfect tone and rhythm with the music, he was chanting:

*"Ladies to the center and back to the bar,
Gents go in and form that Star,
With a right hand up and howdy-ye-do
And a left hand back and a how-are-you."*

*"Now meet yore honey and pass her by
And take that next gal on the sly.
The gents swing out, the gals swing in
And form that Arizona Star ag'in!"*

"Oh-b-h-
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"Oh-h-h oomtiddy boom and a oomtiddy boom

*And a git back folks and a give 'em room!
Now everybody break and swing,
And promenade around the ring — ee-
YAH-hab!"*

Everything he said was a command instantly obeyed in unison by the set of four couples before us. And there was much more of it, enough to seem highly confusing and complex to the person who has not danced that way. Actually, it is easy to learn and exhilarating to perform.

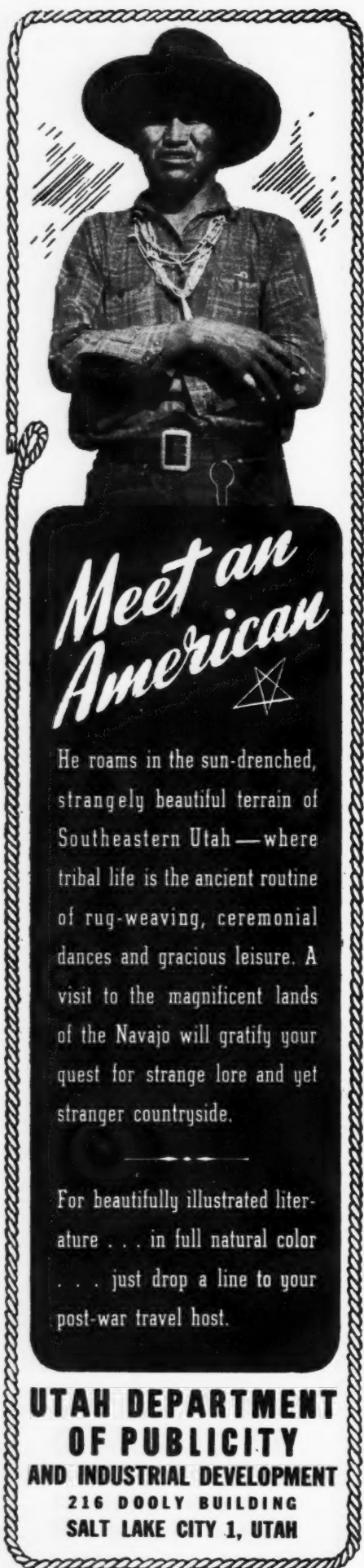
That evening we had six sets present and we danced a repertoire which included the Arizona Star, the Portland Fancy, the Varsouvienne, the Wagon Wheel, the Dive for the Oyster, the Schottische, the Lady Round Two, the Heel and Toe Polka, the Baby's Cradle and the Minuet. Most of them were done in sets of four couples, but some like the Varsouvienne and Schot-



*"Form a bridge and all pass under,"
a call in the Virginia Reel being
danced here by Docey Doe club
of Phoenix.*

Leader Charlie Mundy plays the double reed harmonica. String bass player is his son Frank "Buddy" Mundy. Guitar and banjo player is Bob Hampton. Marion Mortensen plays the piano and her husband Martin beats out the rhythm on a wash tub drum.





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tische were done as separate couples, each on its own. Those not dancing invariably helped out with the rhythmic handclapping and occasional song—an audience participation which you can enjoy even though you be in a wheel chair.

Every western and every southern state today has several active social groups who specialize in these old-time dances, and even that R.F.D. town on the Hudson, New York, has more than 40 organizations devoted to them. Their beauty appeals to all ages and types. In America, they are adaptations of old European folk dances. They reached a peak of popularity here soon after the Civil War, especially down south, and as southerners moved westward they carried the good times with them, so that the singing fiddle and the call "Sets on the floor!" have come on down to this decade.

The new popularity started just before Pearl Harbor, is steadily growing. Soldiers in Arizona, New Mexico and west Texas recently voted square dancing as their most preferred recreation—which was a little hard on the jitterbug girls who hadn't learned it. Peculiar Haines taught the art to more than 3000 men in uniform last year.

Most active soldier teacher today is Charlie Mundy, a printer at Phoenix, Arizona, who square-danced as a kid and went back to it when he had a boy of his own. Jovial Charlie's voice is like that of a Hereford bull, and to back up his calling he found three cowboys and one cowgirl who could play old-time music. Their hobby is playing for men in uniform. He has re-introduced such fine old favorites as Money Musk, Turkey in the Straw, Oh Susannah, Red Wing, Merry Widow Waltz, and others right on down to Mairzy Doats. It's not the actual title, but the style of playing, that types the music for a square dance.

Now, it would be selfish to show you square dancing then leave you out in the cold. Obviously you can't all ride up the mountain trails to be one of Peck Haines' pupils nor go to the canteens where Charlie Mundy plays. No matter. Push back the chairs, folks, and roll up that big rug. We can get things going right here in your own home!

Imagine a space 12 feet across. Place one couple on each side of that square, lady on the gent's right, all facing in. Now let's practice that Arizona Star, first with a "walk through" only. Listen carefully to the calls:

"Ladies to the center and back to the bar."

That's easy. Ladies simply two-step to the center, bow quickly, and back-step to position.

"Gents go in and form that star, with a right hand up . . ."

Easy again. Gents two-step to the cen-

ter, clasp right hands palm to palm at head height, then continue two-stepping in a circle using the crossed hands as the pivot point.

"And a left hand back . . ."

Gents turn right around and re-form the same "star" figure by clasping left hands. Keep two-stepping in a circle, but now going the other direction, of course.

"Meet yore honey and pass her by."

Just ignore your partner; two-step right on by her as she waits.

"And take that next gal on the sly."

Do exactly that, gents. Crook your right elbow, so she can hang on to it and start dancing in the circle with you. Now all four couples are circling, two-step, with the men's left hands clasped by couples and crossed.

"Gents swing out and gals swing in."

Men swing to the outside of the circles, girls swing in and clasp right hands, crossed, as the men had done. Direction of motion is reversed again now, but you have "formed that Arizona Star again."

"Everybody break and swing and promenade around the ring," is simply a hip swing with the girl at the man's right side, then both hands held as the couples march in a circle to original positions, where they stop and bow. Now each gent has a new partner. The whole maneuver is repeated until he gets his original "honey" again.

That's one basic dance. Preceding it will be preliminary motions—"allemande left and a grand right eight," "docey doe," "all jump up and never come down, swing yore partner round and round," and many variations which you easily can learn and which warm you up to the main dance. Most callers will add a kind of postlude or finale to each dance, too, for further pleasure.

Look around you—somewhere in your community there's a square dance tonight! Churches, lodges, schools, clubs, are always sponsoring them. But if necessary, just gather a few congenial friends, buy a few phonograph records (special square dance records are available), get one of the 50-odd books and pamphlets on square dancing from some library, and teach yourselves at home. You can have a swell evening just learning!

One midnight recently my "honey" and I were leaving a square dance at Hotel Westward Ho in Arizona when Roy Wayland, perhaps the richest man in that state, bade us goodnight and said, "You know something? This is the finest, most wholesome recreation in the world. You simply cannot carry your income tax problems, your business or family affairs, or any other sort of worries with you when you square dance. All you can do is forget troubles and be gay."



Part of the Bagdad Copper corporation camp, looking west from top of headframe. Clint and Helen Anderson live in one of the three houses to the left. Warehouse, center foreground. Assay office, extreme right foreground. Hospital and nurses' residence across the wash.

Life in a desert mining camp would bring out a rebellious streak in many women—but not Helen Anderson. Her home is 30 miles from the postoffice; it faces a hillside scarred by cave-ins from old copper workings; summer electric storms have hazardous results at the mine where her husband sometimes puts in a 50-hour shift; trucks and the planes overhead add their roars to the raucous sounds from the mine and mill; when she looks out her window her "view" is of ore being brought up the shaft and dumped . . . Yet she finds inspiration here. For past that same window a cardinal flashes crimson; in the folded hills about her is a rainbow of wild flowers and a "rock garden" of blue and green and mottled ore so vast the most rabid collector couldn't carry it away. And she knows these man-made intrusions will never change the desert sky nor dull the red-tipped crags.

Miner's Wife in the Copper Hills

By HELEN ASHLEY ANDERSON
Photographs by Clinton Anderson

THIS is copper country. The quiet of the Arizona desert is broken. There is industry in the hills where the giant saguaro stands king among the cactus.

Noises from copper mine and mill echo back from the hills to the camp where we live. Cars and trucks and the occasional roar of a big bomber shatter the silence as I go about my daily tasks. At first these sounds which did not belong to the desert grated on my nerves. Now I have grown used to them, and the copper stained hills about us are an inspiration to the collecting instinct of a rockhound.

Our camp is midway between Prescott and Parker Dam in Yavapai county—a long way from anywhere. Phoenix is 100 miles away, Prescott 75, and we drive 30 miles to the postoffice at Hillside when we have the gas. But mail and supplies are trucked in daily, so we manage quite well.

Our house is located on the south side of the hills that form a queer-shaped bowl. We look up instead of down, and the steep sides of the hill across from us are scarred

by the dumps from the old shaft and the cracks in the earth where the mountain is caving in above former workings.

During the early days it was seldom we got a full night's sleep. My husband Clinton was awakened not once but sometimes two or three times a night to rush to the mill or mine of the Bagdad Copper corporation. Once he put in a 50-hour stretch, coming home only long enough to eat.

Sometimes it rained. During February the roads were so slick it was difficult for the truckers to get in and out. Sometimes it snowed—which surprised me almost as much as it must have startled the lizards of this arid land. But the moisture made the hills look cleaner, and I am sure all growing things were grateful for the life-giving water granted them.

Occasionally last summer we had bad electric storms, such as the one that came suddenly out of a hot spell in July.

We had just finished dinner when the storm gathered. Before long it was dark and lightning streaked the air, followed by

loud claps of thunder. The lights went off, blue flame licked the transformers and the most unearthly noise penetrated the din. Not bothering with his coat, Clinton grabbed his hat and lit out for the compressor room. In the ensuing moments the high tension line was hit and the power went off. The throbbing of the mill died and the pipe lines started to clog.

After some time the lights came on. Still no sign of Clinton, but when things finally calmed down he came home to dry clothes and a cup of hot tea with the report that one-half of the compressor was completely ruined.

These were some of the new and sometimes terrifying experiences to which I had to accustom myself.

The mine is a vertical shaft 500 feet deep, and the ore is hauled in trains pulled by battery locomotives to the pocket at the bottom of the shaft where it is loaded on skips.

This skip is a two-compartment combination cage and skip. The lower deck is used for transporting men and materials to

"Dutch" Van Brunton loading concentrates for the first lap of the journey to the smelter.

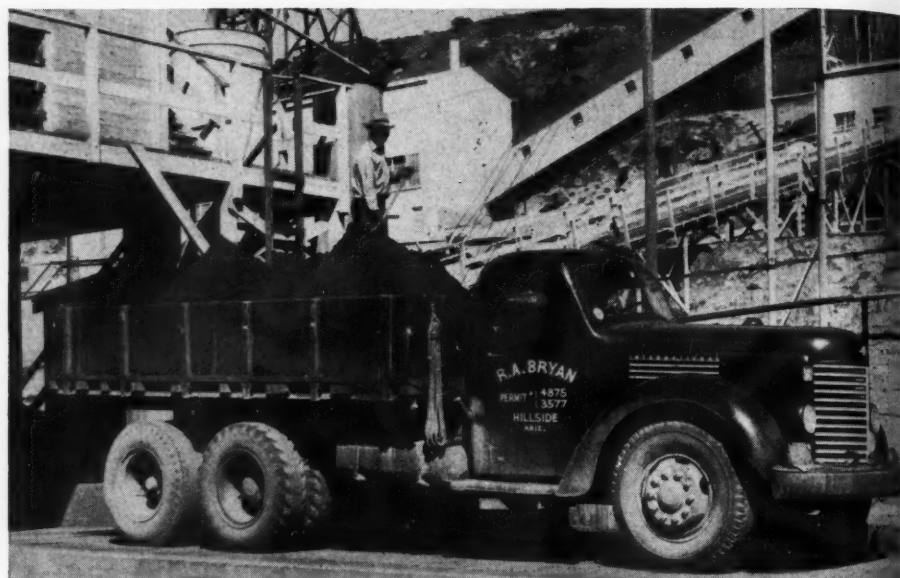
and from the surface. The upper part is made like a huge bucket which is hinged on its frame so that it dumps automatically. This bucket brings the ore up the shaft through the 125-foot steel headframe (the highest headframe in Arizona) and dumps it into the bin. I can see these skips dumping from my kitchen window.

The bright stained rock cropping up all over the hills is not the kind that Uncle Sam wants. He is interested in this ore that comes up on the skips.

The skips are brought up by an electric hoist that is busy night and day tripping its burden into a great steel tank poised above the jaws of the crusher that breaks it into pieces, spews it out onto conveyor belts and thence to another crusher where it is ground still finer before being sent to the ball mills.

These ball mills are enormous revolving cylinders loaded with steel balls. The ore is fed into these ball mills where water is added to control the density and fineness of the grind. The pulp then is classified, ready for the flotation machines.

The flotation machines are marvels of science. Man's progress in the metallurgical field would have been considerably



hampered without them. They are the very heart of the mill where the finished product, a copper concentrate, is skimmed off in the form of bubbly froth.

To obtain this froth, reagents of oils and chemicals are added to the pulp, and in these flotation machines are fast-spinning agitators, or impellers that thoroughly mix and agitate this pulp until each minute particle of copper is coated with the oily reagent and floated to the top of the ma-

chines to be skimmed off as concentrates.

The waste, or tailings as we call them, not being acted upon by the reagents, sink to the bottom and pass on through the machines into thickener tanks where nearly half of the water used in the mill is reclaimed and used again. When the tailings leave the mill they consist of about one-quarter ground rock and three-quarters water. After the "thickening" process, the tailings are the consistency of thin mud.

Fresh water is pumped seven miles through a ten-inch pipe line from a small creek down the canyon. A man and his wife tend the pumps at Burro creek. He has one shift, she the other.

After the tailings are thickened they run through a pipe line five miles down this canyon and are stored behind dams so that the water below will not become polluted.

The mill has a capacity of 2500 tons daily so it produces a lot of tailings.

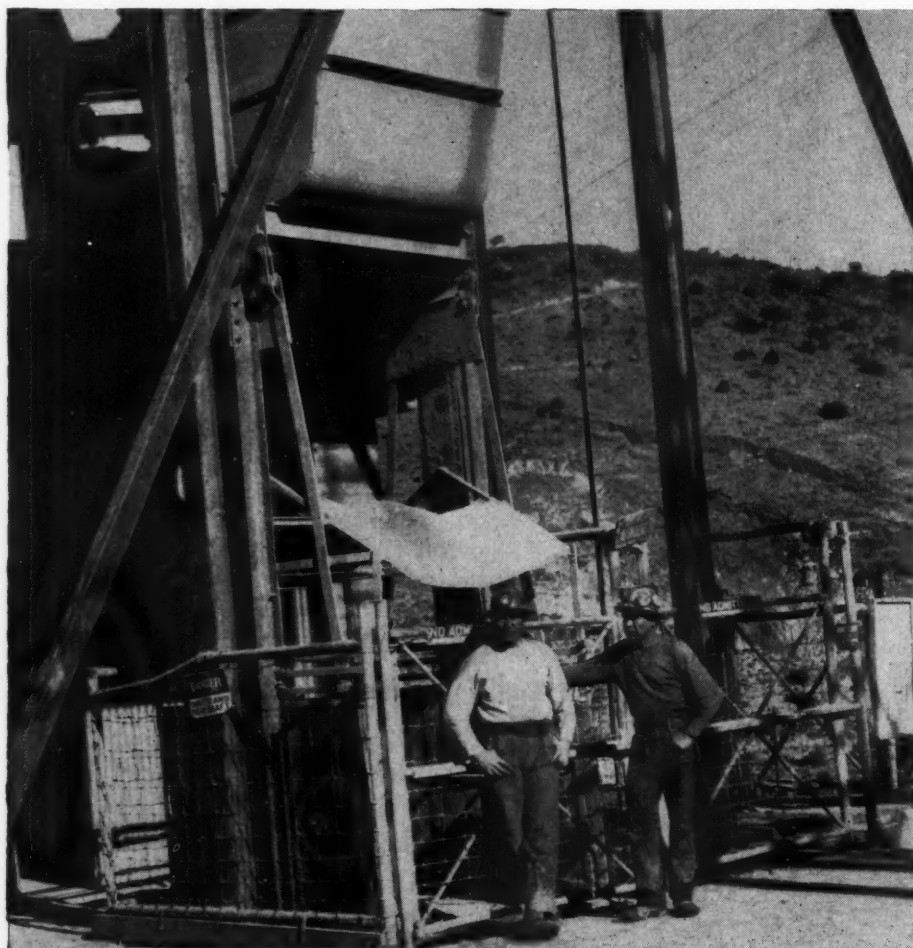
Occasionally the ball mills spew out little copper nuggets that would delight the eye of a rockhound. Unfortunately for him though, they have to stay there as they are a part of the product of the mill, being used in ammunition, the building of planes, ships and tanks, as well as the hundreds of civilian uses such as those in the electrical industry.

Great chunks of chrysocolla and slabs of green and mottled ore lie in wanton waste all over the hills. At least, it seems waste to people interested in rocks. It is too low grade to mill and therefore useless as a product.

At first I could hardly bear this seeming waste but now have become immune to a "rock garden" so vast that it could not possibly be moved by the most enthusiastic collector.

The public is not encouraged to collect

Manuel Parra and Rumaldo Danials ready to go down the mine. Skip in background.





Helen examines a copper stained specimen.

here, and unless one had a special permit from the owners, it would not be advisable. However, there are miles of open ground where these copper outcroppings may be seen, and anyone desiring to prospect on this open ground could do so.

So far as field trips are concerned, my collecting is limited. It takes all the gas we can save for an occasional trip to town, so I bide my time, content with other occupations. But I have collected a few mineral specimens in the vicinity, such as chrysocolla, azurite and chalcopryrite. Also some lead and iron. One specimen is especially attractive. It is not large, only about five inches square, but it is of a very blue chrysocolla mottled with red jasper with the lower left corner of black mica.

In the area, but several miles from here there is some virgin ground where moss agate can be found. There is no road to the place, but some day we plan to make the trip by the old and proved method of walking. We expect a most interesting trip, the one big drawback being rattlesnakes. However, a rockhound cannot be intimidated even by snakes when he is on the trail of moss agate.

Partly compensating for lack of rock hunting expeditions is the abundance of plant life here in the folded hills.

Giant saguaro, prickly pear, palo verde, juniper, scrub oak, mesquite, catclaw, creosote, ocotillo and many others march down the vistas side by side in a lavish display of color. The hues of the flowers are so many and varied that a listing would run into a long catalog. Foremost of my favorites is the beautiful ocotillo, with its long green stems tipped with crimson plumes.

The flower on the cholla blanca around here is the palest green, contrasting with the bright pink of beaver tail cactus.

the creek beds, and vines with little red bell-like flowers climb into their branches.

Of all the flowers one stands foremost in beauty. It is the golden or orange brown-throated mariposa lily that blooms along with the California poppy and the white and yellow daisies that are so abundant during the months of April and May.

As I write the sun climbs high in the heavens and the earth reflects back the heat from its dry breast. It can be very hot, although the nights usually are cool and refreshing before the dawn of a new day.

The mill is rolling along. Its roar shatters the stillness of the desert air and makes us aware of man-made things. But it cannot change the sky, nor dull one red-tipped crag, for centuries of setting suns have painted them, and the night erased their colors a trillion, trillion times.

The desert seems made for quiet things, and at evening I like to remember that the old haunts of silent meditation await us as we look forward to the promise of a tomorrow when the breeze again will blow across the sands of solitude and content rule a peaceful earth once more.

In the meantime there is the hustle and bustle of an ever changing camp. I can hear the skip at the top of the headframe. The bucket is dumping. The ore rolls down the chute into the tank, the dust fans out, settles, and the skip slides back down the shaft.

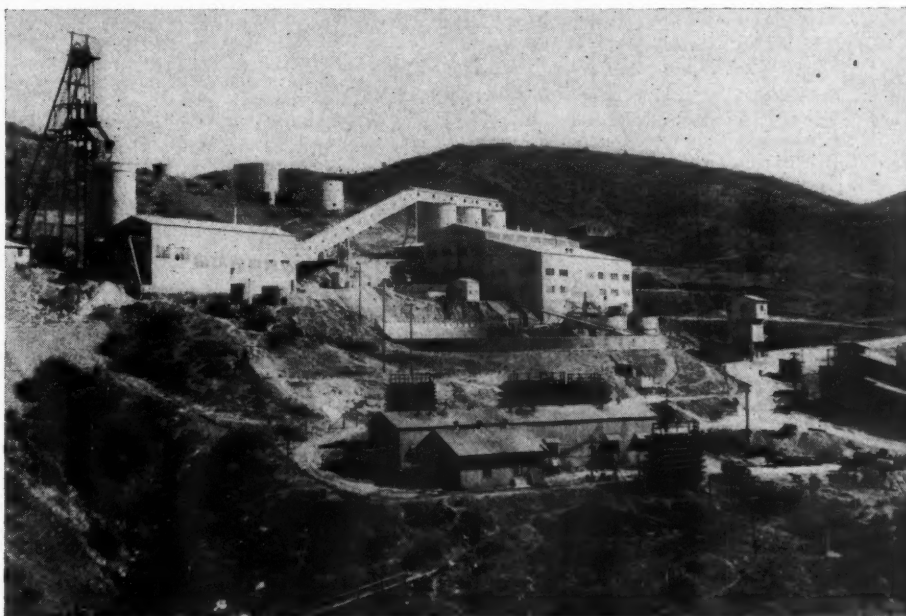
A cardinal is a flash of crimson past my window, and the drone of a plane riding high blends with the familiar noises so that I am reminded that all these things, both big and small, are a heritage of the present day, and therefore an integral part of this land we love.

One never ending wonder is to see so small a plant as the century, or mescal flaunting a great stalk topped with heavy blossoms while the giant saguaro, many times its size, wears a modest wreath of small white wax-like flowers.

The palo verde and mesquite deck themselves in gay yellow trim while the ironwood is veiled in lavender lace, and the purple lupine threads its graceful way across the hills to mingle with neighboring plants. Some of them are tall and garish and rank smelling. Some of them tiny and fragile and daintily perfumed.

Cottonwood and sycamore grow along

General view of the copper plant, looking east from an old mine dump. Left to right—Headframe, tank, crusher building, conveyor and mill. Water tanks on hill above mill and concrete settling tank below.



THE DESERT

By JAMES B. DUMMER
San Diego, California

My task is in the city,
In the crowded mart and street,
Midst the roar of clashing traffic
Midst the rush of strident feet.

My heart is in the desert,
Where a yellow hunter's moon
Casts its mellow radiance
O'er shifting grey sand dune.

I long for endless mystic trail,
And a campfire's ruddy light,
'Neath stars so close above me,
In a breathless, silent night.

I dream of rosy, tinted clouds,
Above the desert's rim,
And the hush of sudden daybreak
O'er a landscape vast and dim

I think of rare oases,
Where bright blue lupins glow,
Of tufted palms beside a spring
Where verdant grasses grow.

And I'd like to leave the city
Leave the crowded mart and street,
Leave the roar of clashing traffic,
And the rush of strident feet.

ALONE

By E. A. BRUBACHER
Balboa Beach, California

I wait and watch by the desert
For someone who comes no more.
I wait and watch by the desert
On the desert's sandy shore.

I hear the song of the night bird
On the little cactus tree.
I hear the call of the yellow coyote,
Things that are alive and free.

But I'm a captive bound with chains
In the desert vast and old,
Bathed in all its jeweled splendor
Its silver and amber and gold.

I wait in the jeweled desert
For someone who comes no more.
I wait and watch on the desert
On the desert's sandy shore.

TO THE EAST WIND

By THEODORE B. DUFUR
Banning, California

O Wind of the East, when I hear your song
Roaring and bellowing all night long;
When I see your violent, madcap flight
Tearing the star-decked, velvet night,
With whistle and whoop and shivering creak
As with clutching fingers the roof you seek,
From your fevered breath my nostrils learn
The scent of the desert, dry and stern.

Destruction lies in your wake, I fear,
As you shake my house in your mad career.
Methinks each brightly twinkling star
You'd brush from the midnight sky afar;
Or the jolly moon's round, dimpled face
From the vaulted heavens you'd quickly chase,
Where he calmly hangs above the hill
And smiles as you wreak your savage will.

O Wind of the barren, desert land,
Sweep onward down the path of sand!
Sweep onward in your howling might
Till the wheeling gulls you put to flight
And over the waves in foaming wrath
You drive the vessels from their path.
Though you shatter the earth from Pole to Pole,
Sweep on, East Wind, till you reach your goal!

Desert Dreams

By URSEL PETERS
Los Angeles, California

Give me a tent and sleeping bag
And a glimmering fire close by,
Give me a desert dawn again,
And the stars in the desert sky!

Give me the sun-baked rocks again,
And the spring in the barren sand,
Give me the shifting dunes again,
And the trackless, lonely land.

Give me the bacon crisp from the pan
And a sizzling coffee pot;
And a sweet long drink from the cool
canteen
When the sun is blistering hot!

Give me a heart that is free again
To follow the lure of Lent;
Give me the wind of the desert again,
And a comrade to share my tent!

MOON OVER GRAND CANYON

By ROY A. KEECH
Santa Fe, New Mexico

A topaz
Lavalier hangs from the throat
Of my dark lady, Night,
As she looks into
A Byzantine
Mosaic.

DESERT MOON

By THEODORE B. DUFUR
Banning, California

Thou desert moon
Beyond the barren rampart of the east,
New risen—
Behold, a grim and eerie solitude
Of naked stone,
A tremble with the cry of coyote band,
Shrilling, reechoing, rebounding
In wild reverberation to the sky.
Through desert bush,
Agleam in thy chill ray,
I hear the wail of desert wind
And, wondering, muse.

O silver orb of mystery,
Why shed thy frozen light
On erring world?
Alone,
A thing of human frailty,
I have no vista but the purple hills,
Awful, upflung to meet the jeweled vault,
Heap upon heap, in dread sublimity.
Yet in the rock-bound wilderness my soul
Has found content.
Immensity reigns here beneath the moon—
Immensity and peace, beneath the moon.

THIS MESA

By GEORGE SCOTT GLEASON
Flagstaff, Arizona

Strange this mesa that I rove
Has neither tree nor wooded grove.
No tree, no tree, lifting high,
Pencilled dark against the sky.

Naught but this, the low mesquite,
Scrub and mesquite beneath my feet.
League upon league, naught but these,
Wide, oh wide—the great swell of seas.

Softly, softly, as I pass,
Its turquoise blue, I glean, amass.
Its clouds, bits of its bright sky,
These I take with me as I ply.

Strange this mesa holds for me
Beauty others cannot see.

OUR TARAWA DEAD

By DORA SESSIONS LEE
Prescott, Arizona

When the desert blooms
They'll be coming back
To the land they love to roam;
From their graves 'neath the palms
They will rise and tack
Their sail for their desert home.

DESERT LEGEND

By RUTH REYNOLDS
Tucson, Arizona

Time dropped a page of diary here
And covered it with sand,
Where the sea had left a footprint
Then yielded to the land.

Mortised in the brittle earth
Are fragments of lost art—
The culture of an ancient race
Asleep in the desert's heart.

The ages, creeping slowly past,
Have showered varied gifts
Over the land, and from the sky
Sunshine or starshine drifts.

And ever the desert weaves her spell,
And her balms are myriad, save
She has no greenery to spread
Over an old, old grave.

So, faithfully above the dead,
When plaintive slow winds sing,
She lights the ocotillo
(God's candles) every spring.

GOLD IN THEM HILLS

By LEE A. WATKINS
Encinitas, California

"Thar's gold in them thar hills,"
An old man said to me;
So I took my burro and my pack
And I started out to see.

I crossed the desert's burning sand,
And climbed the mountains rough;
I dug holes and broke big rock,
But I couldn't find the stuff.

At last a mountain stream I found,
Its bed was shining sand,
And e'er I slept that night
A tiny pouch I'd panned.

"Thar's gold in them thar hills,"
I dreamed it o'er that night,
And waked to find the shining gold,
And I knew that he was right.

DESERT WINDS

By MARIE MACMILLAN
Hollywood, California

The soft winds blow from the desert lands
And bring me rare perfumes
They gathered from the desert plants,
The thorny cactus blooms.

They whisper of a starlit sky
Above an open trail;
Of nature's tiny creeping things;
The lonely coyote's wail;

The beauty of the yucca plant;
The weird old Joshua tree,
That thrills me with the mystery of
Its great antiquity.

Some day I'll go, when the soft winds blow
Across the desert floor,
Their secrets I'll know, when with them I go
The cosmos to explore.

Rider has discovered a new world. His passport to this strange land of hitherto unknown wonders was salvaged from material considered useless by its former owner. But to Rider breath taking beauties are revealed by the low-power lens found in an old camera view-finder. Tiny flowers and herbs, microscopic animal life—a new layer of existence just beyond the range of the unaided eye—have come magically within his vision.

Desert Refuge

By MARSHAL SOUTH

IT ONCE had been a prosperous village. But it was abandoned now. Under the desert sun it lay bleak and melancholy. Around the edges of the hard trampled area that once had been vibrant with the goings and comings of busy life there still were strewn evidences of industry. Great piles of earth and rocks, excavated from underground kivas and dumped by the excavators; huge deposits of household waste and village trash that had been likewise carried to the edge of the settlement and there thrown in ridges. The old dim trails that led out into the desert land to the north and to the west still were visible. But nothing moved upon them. Only the lonely wind stirred the bunch grass and sang a low dirge of silence—and of death.

Suddenly we saw the shrunken, motionless bodies huddled upon the earth. And in the same instant we glimpsed the monster. An ugly, uncouth thing, bulking gigantic as he bent horribly over the twisted corpse of his latest victim, he stood over by one of the village refuse heaps. At sight of him we stopped dead in our tracks.

Perhaps one would think it absurd to be affected by the sight of an assassin bug or to be disturbed by his brutal slaughter of the last survivors of a once teeming colony of harvester ants. Especially when all over the earth men are slaughtering and maiming their fellow men by every brutal method devised by science.

Yet death is death. And be it of solar system, world, man, ant or microbe, it is an event of solemnity to the victim. So the sight of that rapacious, blood-sucking brute and the twisted shapes of his ant victims, as we saw them that desert afternoon, affected us strangely. It was as though we, as gods, looked down upon a devastated city of humanity. Somehow there was a feeling of horror about it, recalling some of those odd tales that the Navajo tell—of how the cliff dwellers originally chose their precipitous dwelling sites so that they might be safe from the monsters that roved the earth in the misty dawn of time.

We stooped closer to investigate. We had known that colony of harvester ants in its prime, and had seen it many times when the tiny trails that led to it were thick with hurrying inhabitants, bearing home their burdens of herbs and seeds. We had watched the builders staggering out of the big tunnel entrance carrying rock grains which, relatively speaking, we ourselves could not have stirred. We had watched the busy workers come from the underground threshing floors with their loads of husks and waste to dump upon the trash piles.

Now all was silent. Nothing but a few dead bodies—and a hideous, long-beaked creature sucking the blood from a still limp body. The tribe was extinct.

This was our first experience with assassin bugs in connection with ants. The desert ant, especially the large black one, is a fighter not to be despised. Speaking from painful experience we would prefer to be stung by an ordinary scorpion or a bee than to be bitten by one of these ant warriors. Yet here was



Bigelow chollas growing on an ancient camp site on Ghost Mountain. Seated figure is Rider.

evidence that they were prey to something stronger and much more gruesomely savage.

How long that particular bug had haunted the village we had no means of knowing. It did not seem—and still does not seem—possible that he could have been responsible for the destruction of the colony. For while there were a lot of huddled sun dried little corpses strewn around, which obviously were those of his victims, still there were not nearly enough to represent the ants which had occupied the place. Perhaps some other destruction had fallen upon the town. Or perhaps, after the slaughterer had taken up his abode in the vicinity, the colony had abandoned the place. At any rate the monster had had an orgy of gruesome killing, liquidating the last survivors and stragglers.

He was an ugly fellow—if judged by the horror that his nature inspired. Otherwise I suppose he was handsome enough in his markings of red and brown. For, in actuality, there is nothing created by the Great Spirit which we—who judge only by our own prejudices—have a right to call ugly. He was full of courage and intelligence, too. For when Rider picked a dry stalk of bunch grass and pried him away from the body of his last victim, he went grudgingly, backing off and facing this thing which he could not fight, with every show of rage. He refused to be routed, always backing away, or walking sideways, with a truculent gait that had in it nothing of cowardice. We hated him because of his brutal slaughtering and blood sucking of industrious little beings that have much in their activities that is akin to our own scurryings. But we conceded the monster his right to live and to fulfill that place in the scheme of things which the infinite wisdom of the Great Spirit has appointed. For, in the balance of this imperfect physical existence, the destroyer is as important as the upbuilder—a fact which many people fail to realize. We went away finally and left the monster still haunting the village ruins.

Ants always repay study. Perhaps, if you reason deeply enough, the lesson to be learned from them is a broader and more ominous one than the glorifying of industry. But aside from this, their actions provide plenty of food for thought. My friend A. R. Wellington, who used to live at Ocotillo, and who is deeply interested in nature, believes that the central nest sends out impulses like radio waves, for the guidance of the roving individuals who are afield. Whether this is so or not could not be definitely asserted without considerable investigation.

From my own observation, I am convinced that something of the kind is true. The way in which ants locate food, in seem-

ingly inaccessible and unlikely places, is puzzling. And watching colonies which were closing up their citadels at evening time or against inclement weather, I have observed "signal" ants mount to high points close to the main entrance and, facing this way and that, apparently send out "calls"—the effect of which was to make the last stragglers, far down the trails, redouble their speed towards home in a surprising manner. The Ant People move and exist in a separate world and undoubtedly are largely unaware of our existence.

Rider, who always is investigating, has discovered a new world—one containing more thrills than that found by Columbus. With a small lens, which he salvaged from an old camera view-finder, thrown out as useless, he has begun to explore the mysteries of those regions which lie just beyond the range of the unaided eye. He is fascinated by the results even from his low-power magnifier. Tiny flowers and herbs, that one ordinarily would pass without noticing, reveal unexpected beauties that are breath taking. A wealth of tiny life exists in the desert. And it is for the most part unknown. Many worlds has the Great Spirit set, one within the other and each complete within itself. Yet men close their eyes to all save the affairs of greed and hate.

Crack! Crack! . . . Crunch. Nibble. Nibble. A mouse? Oh no! Just Victoria at her favorite occupation of eating piñon nuts. Always, it seems, Victoria is nibbling piñon nuts. She is more industrious than a squirrel or a packrat. In the early morning, after she wakes, you hear her little fingers scuffling through the bowl of nuts, hunting for the largest ones. In the hot afternoons, when the yellow mustard flowers along the outside wall are drowsy in the sun and all the far desert lowlands shimmer in the dancing mirage, you hear her tiny white teeth crunching down happily upon her favorite delicacy. In the evening, when the lamp is lit and the mice steal out of the shadows and the night wind skirls above the lone roof of Yaquitepec, she still is nibbling. "You should weally exercise some disqwession," Rudyard admonishes her often. "If you don't you are going to upset your eqwilibrium an' be twansformed into a twee squirrel."

But Victoria just giggles. And goes on nibbling nuts.

Nor is she alone in her liking for the toothsome little brown morsels—though she easily heads the list as a star consumer. All the Yaquitepecos have a weakness for piñons. After an evening session the table, with its litter of empty shells, looks as though a troop of chipmunks had banqueted there.

The ideal way to crack piñons is with your teeth—at which Victoria is expert. But each one of us has developed, in addition, a side method which is called into play for variation. Tanya uses an old pair of pliers that harks back to the days of the model T Ford. Rider cracks his adroitly by the aid of an ancient cannon ball (a feat no one else can duplicate). Rudyard is fond of a particular bit of wind-rounded stone that came from the vicinity of the Salton Sea. As for myself I have found nothing, for speed and efficiency, which will compare with a long-bladed, ancient knife—used back down and hammer wise.

The piñon nut is not as popular as its virtues give it a right to be. Many people find its small size makes it too tedious to be bothered with. Yet it probably is the most healthful of all our nuts. A natural product, a true food of the wilderness, its goodness has not been "legislated" out of it by cultivation and "selection" over a long period of time. My first acquaintance with the piñon nut dates from a day in Mexico, when to the great scandal of aristocratic friends, I took a long railroad journey, third class, among the lovable Mexican Indians, who in those days patronized third class travel exclusively. My seat-fellow, Don José, a kindly leather-faced old son of the desert, had a great red bandanna, knotted cornerwise, full of the little brown nuts, to which he promptly introduced me. And for many a league, while babies squalled and fighting cocks gawked and stalked among the seats and the panting little locomotive hauled us south through the dust of Sonora, we munched piñon

nuts and exchanged friendship and homely bits of desert philosophy.

Which brings us to the name, Yaquitepec. Many friends have asked its derivation. And how to pronounce it.

It is a word compounded from two others. Yaqui—the name of that tribe of fiercely freedom-loving Indians who live in Sonora, and Tepec, the Aztec word meaning hill. As, for example, Chapultepec—grasshopper hill. Thus Yaquitepec means simply Yaqui hill, or hill of the Yaqui. And it is pronounced YAKee-te-PECK. Not Ya-KEE-tepeck, as so many mistakenly suppose. Ghost Mountain is quite a considerable jumble of rocks, in its own right, and Yaquitepec is the name we have chosen to designate our house and its immediate surroundings. As for Ghost Mountain itself, the name is self explanatory. This is an ancient bit of the desert. And an ancient mountain whose weathered boulders are steeped in the sense of half forgotten things.

The new cistern isn't finished yet, and the outside catch-pool long has been dry. Cement work does not readily proceed without water with which to mix the materials. And we dare not use any of the precious store in the drinking tanks—which already are going down at an alarming rate. So we wait for some summer thundershower to give us surplus water. Years ago, before Boulder Dam was finished, we could count on one or two—sometimes three—good rainstorms in the summer. But now that the blue surface of Lake Mead has upset the desert moisture balance and the thunderstorm cycles have altered accordingly we never are sure that we will get anything. But we shall continue to hope that the Thunder Birds will flap at least one good shower our way before the summer passes.

And now I have come back, after carrying the mescal beetle outside. I barely had struck the period in the paragraph above when loud shouts from Rudyard and Victoria proclaimed that another long-time resident of our mescal beams had forsaken the old home and decided to go forth into the world. So I had to go and rescue it from the confining bounds of the house and set it free in the outer air. Gay and handsome fellows, these mescal beetles. Members of the numerous Long-horn family, they look very smart in their dull red wing cases and long slender feelers. All winter, in the grub state, they have been boring and nibbling channels through the lengths of the mescal poles which we have stored, to season, across our ceiling beams. Fat and industrious though they are at this stage, they are very helpless, and several times during the winter we had the job of assisting back into their tunnels, individuals who had tumbled out and landed upon the floor.

And now that these helpless grubs have gone through a death change and have risen as winged beings, they come forth as into a new heaven. An inch and a half long, some of them, with feelers often a full half inch or more longer than their bodies, they cannot understand why screens and walls prevent their reaching the wide world. And they fuss and buzz about until turned loose in outer space. The Indians knew this class of beetles too. In the grub stage, carefully fried in grease, they make excellent eating. Carl Lumholtz, that prince of desert explorers, having enthusiastically gotten away with two heaped platefuls served him by his Indian hosts, declared (before he knew what they were) that they were delicious, tasting something like roasted peanuts.

FREEDOM

*Oh to be free! To labor as I feel
The will to labor only for my weal,
Not driven by the clock, howe'er I may
Dispense my future, cautious of the Way.
To feel the wind upon me, and the sun,
Or lie at ease upon the grass, as one
Luscious with endless hours on hours untold—
Ah, that is worth so much, much more than gold.*

—Tanya South

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ZINE



Accumulations of salt about the pilings of the railroad bridge across Great Salt Lake. Crystallization takes place only in late summer or early fall, when the salty water of the lake has reached a saturate solution due to excessive evaporation. Later in the season these crystals dissolve and the deposit changes chemically to a chalky white substance which crumbles easily.

When Frank Call, who is surrounded by a sea of salt every day, lugged home a back-load of salt he was afraid his family would think him "plumb goofy." But they didn't—for this was no ordinary salt such as they saw each day and such as they often scooped up to put in the ice cream freezer. This salt Frank had found about the pilings of the railroad bridge which crosses Great Salt Lake in Utah. He had descended a ladder below the bridge, then suddenly found himself in a fairy-like crystal grotto where every piling and stringer was covered sometimes to a depth of more than a foot with the most beautiful formation of halite crystals he ever had seen. Right then a hobby was born. Many collectors in America, including Franklin D. Roosevelt, now have specimens which Frank has collected.

He Found Beauty in Salt

By BERTHA GREELEY BROWN

SINCE Frank Call had sent us halite crystals for our mineral collection my husband and I had planned to visit him at his Lakeside, Utah, home. But he warned us not to attempt to reach the place by car, and added, "Foolhardy persons have lost their lives trying it. The only road in here is a trail over the desert and the winds keep this obliterated most of the time. Come by train from Ogden, over the railroad bridge 'cut off'."

At snail's pace the train rumbled over soggy, salty, old lake bottom, then over miles of rock-fill, 12 miles of bridge proper and again six miles of rock roadbed. The only break in the monotony of mud, fill and water was Promontory point, a bold palisade of cyclopean boulders reaching far out into Great Salt lake from the north.

At Lakeside, the train stopped just long enough for us to lurch out onto an embankment of jagged quarry rock, paralleled on both sides by beds of sand. Before we were balanced on our feet the train plunged its snaky length into a shimmering sea of heat waves breaking on the opalescent rim of a limitless wasteland. This barren area, reaching from Salt Lake southwestward to the Nevada line, is the Great Salt Lake desert, a catch basin for few rains and few rivers, a vast inland system of drainage where the only means of moisture escape is by evaporation. The dry basin is connected with the present Great Salt lake by a wedge-shaped estuary ending in a narrow passage at Lakeside.

Only break in the monotonous train trip from Ogden to Frank Call's home near Lakeside was Promontory Point, a bold headland of tumbled boulders reaching far out into Great Salt Lake from the north. Photo courtesy Ogden chamber of commerce.

The flatness of this steppe is relieved by steep, isolated, north and south ranges of monoclinical structure, constantly disintegrating and depositing detritus over low levels.

The mile walk along the track to our destination was flanked by a dozen railroad company houses, clinging to the terrain more by tenacity than by foundation. No one was at the Call home. We were not surprised for Mr. Call had written, "The door will be unlocked. Go right in and wait until I come."

Ten years ago the waters of Great Salt lake lapped at Lakeside's back door. Since then the lake has receded more than a mile, leaving long, slender, briny fingers still clutching at the





old shore line. Crowding the front door of the Call home was a diminutive garden kept alive by water carried many a mile in tank cars. I watched globular grains of sand eddy about vegetables while zinnias stood in a border and flaunted bold color to the whip of a stiff wind.

We heard the purr of a car as it slid smoothly in from the west over railroad tracks, then a quick step on the path. Ito, an amusing canine blend, whined joyously. The door opened and there stood Frank Call.

"Came by train?" he asked as he held my hand in hearty grasp.

"Well, we're here. Isn't that the answer?"

"I was worried, afraid you might try the road." He sank into a chair tired from heavy work and heat of the day but he continued to speak with energy, vilifying the desert, like a parent quick with a slap, followed by a caress.

"This land is utterly merciless. Hot winds, salt laden, lash and bite at one's flesh until it is raw, a Frankenstein monster destroying the pulse of life that beats in bird and beast and man." His manner was grim for past tragedies were crowding his thought. Then roundish desert-stung features softened. This and his short stature gave him a boyish look as he added, "But it is redeemed by its eternal changes. Lo, and it is mellow, peaceful, friendly—even more than this—the air is incense, the silence music, and distant haze a lure. It bewitches until one renders it his heart. Its moods are a challenge. I tell you I love it. And all my feeling for the desert is shared by Mrs. Call and the children."

Our correspondence had begun when we received halite (sodium chloride, salt) crystals for which we sent him polished semi-precious stones. Frank Call did not single us out for special favor for soon we learned he was sending halite to museums, offices, schools and to mineral hobbyists everywhere. A beautiful group of crystals went to Columbia university and another to Franklin D. Roosevelt. Carefully tucked in a pigeon-hole of Call's desk was a letter of thanks from the president.

"I'm glad," he said, "when I get minerals in return but I never dicker for them. I do like to feel the halite is appreciated." This man, not moving from his isolated environment, has reached out a hand of friendship to the world and it has responded by knocking at his door.

"These," said Mr. Call, speaking of the specimens in cabinet and desk, "are about all—oh yes, and the stove—that I keep here when I am batching. Mrs. Call and the children live in Ogden during the school year. This rock hobby is being practically forced on me and when the pile verged to out-of-bounds my oldest boy, Wendell, helped me work out a card index with data of specimens, localities and donors."

While we looked at the collection Mr. Call told us about his halite collecting.

"I have been stationed on this west side of Salt lake many years and have traveled back and forth over these flats hundreds of times but until three years ago I saw no particular beauty in salt. Of course it is mighty necessary, in small amounts, and kinda handy too for the children to go out and scoop up to use in freezing ice cream.

"One afternoon my work took me on an inspection tour to the west end of the railroad bridge and I let myself down under the bridge on a ladder to survey the condition of the pilings and stringers. I got clear to the bottom of the ladder before I realized I was in a veritable crystal palace, fairy work. Every piling and stringer was covered to the depth of inches—yes, in some places over a foot, with the most beautiful halite formation I have ever seen—and I have seen a-plenty. I have lived in the salt area enough years to kick tons of it around under my feet but this was just different—so much so, I found myself exclaiming over the glassy, symmetrical beauty before me.

"I began to pry chunks of these crystals loose, using a bar with one hand and holding tight to the heavy halite with the other, working laboriously and carefully for fear the pieces might slip from my grasp into 40 feet of water. When I got all I could lift to my back I started for home, thinking all the time the family would believe me plumb goofy when they saw me lugging home—salt. But they didn't. They exclaimed over it the same as I had. That experience stabilized a viewpoint I had entertained for a long time—it is never foolish to gather about us the things we feel are beautiful.

"Then my boys helped me on my collecting trips. To get to the halite from Lakeside means a walk on the rock fill. This alone is a man's work, 12 miles—six to the bridge and six back—and this over rocks that literally tear the shoes off one's feet. Passing trains are enough to scare the life out of one and really dangerous, for the margin of safety between the swift moving wall of cars and deep water is small. Among other experiences, we often got a briny bath to boot. The wind will come up in a jiffy and whip the lake to a froth with waves running high enough to engulf us.

"By the time I had collected a nice pile of crystals I wanted to share them. My first opportunity came when I heard from you folks saying you had seen a piece of halite I sent to the museum in Temple Square, Salt Lake City. This shipment to you was the real beginning of giving away crystals."

Water in the Great Salt lake averages 17 per cent salt, three and one-half times as salty as the ocean. On the Great Salt Lake flats is a saline deposit from one to 20 feet in depth, a salt field 65 miles long and from one to 20 miles in width. The whole area was called, by early scientists, Lake Bonneville, of which Great Salt lake is a shrunken remnant.

Frank Call explained that crystallization on the bridge pilings and stringers takes place in late summer and early fall when the waters of the lake reach a saturate solution. Later in the season these crystals dissolve and the deposit changes chemically to a chalky white substance, crumbling easily.

Halite crystallizes in the isometric system, usually in cubes but frequently in a curious hopper-shape in which each face is hollowed out. The crystals formed above the water line have these concave faces—like cubistic intaglios. Those formed below have small cubes superimposed upon the surfaces of the larger ones.

It was getting late but conversation continued, touching upon those things men live by—work, love, faith. Frank Call talked of his ancestors, intrepid pioneers of Utah. All they suffered, all they taught and all they were is his inspiration, his legacy and his endeavor. A low resolute note in his voice left no doubt that he held in veneration, their works, their wisdom and their faith.

"All my life I have been in this state with the exception of 10 years spent in Mexico. When I selected my missionary field I decided on border towns, preaching to the Spanish speaking people in their own tongue. Now my church work takes me to Ogden where I preach, in sign language, in a Mormon church dedicated to the deaf and dumb."

As Frank Call told of these duties he unconsciously demonstrated. Hands that know hard work took on expression

Frank Call holds two large clusters of halite crystals, each crystal beautiful, symmetrical, shining.



Frank Call said if the lake would "do her part" he would do his in getting pictures of the halite crystals. But the bridge now is under guard, and at the time this photo was taken the salt still was thin. Frank is prying off a cluster of crystals. Notice the small crack at the point of his bar. Next step is to kneel down and hold the heavy cluster with one hand while prying with the other. Often fingers and hands are severely cut while doing this. Corners of the crystals are as sharp as glass. And if he lets the halite slip—it goes down 40 feet.

and grace, their movements putting into words reverent thoughts and deep-rooted convictions.

Morning broke with disappointment. Plans for a hike to where halite was forming had to be scuttled. We have been seaside dwellers too long to adjust ourselves immediately to an elevation of over 4000 feet. My ears were ringing and my heart was pounding like a trip-hammer—no walking for me that day.

Frank Call told us that during his limited prospecting nearby he had found interesting minerals, usual to old sea-arms. Thus a substitute trip was in the offing.

"Come on, Frank," E. K. called as he started for the door. With pick, shovel and rock-sacks the two began their quest leaving me to nurse self pity.

The men walked to the back of the Call yard, stepped down into the old dry lakebed and went about a mile eastward until they were opposite the railway depot. Here selenite crystals appeared plentifully on the crusty salt surface. Digging down a bit they found crystals larger than the surface material, some

measuring over three inches in length. It is reasonable to believe the vast, ancient seabed of western Utah would yield abundant return of this gypsum mineral to the methodical prospector. However, it is not a trip that can be made hastily or without certain inconveniences and even danger.

Two interesting minerals were found that day a mile west of the Call home. At the base of a low, barren, warty hill is located a stone quarry from which stone is taken for lake fills. It was here, in and about the quarry, that E. K. and Frank Call found cone coral and travertine.

The cone coral is, as the name implies, cone shaped, about three inches by an inch and a half in size, takes a good polish and has an interesting pattern of coral structure. The travertine is deep cream in color streaked with rusty red and resembles the so-called Death Valley onyx. This travertine is non-crystalline calcite. If one is careful to gather non-porous material he will have rock not only beautiful, but suitable to work into ash trays, book-ends and paperweights for it takes a good polish and can be shaped easily.

One evening as E.K. and I were testing minerals with our argon lamp I inadvertently slipped the Lakeside minerals under the light.

"Whew, what beauties!" E.K. ejaculated as he turned each piece over and over while all faces glowed back with ethereal colors. The selenite, ordinarily cloudy white, fluoresced a lovely Nile green; brownish cone coral turned to soft lavender, purple and deep blue while the travertine proved to be the prize of the lot. One piece, showing distinct water formation with blunted stalactiform surface, fluoresced in three colors. The base was a deep cream, the stem of each pigmy stalactite was pea green while the very tip burst forth in flower-like cerise—a mineral bouquet.

"Any time you folks are inclined to do archeological prospecting I can take you to Indian caves not far from here," Frank Call informed us. Our interest received a setback the moment it was quickened.

"I doubt we could make the trip today," he continued. "These recent rains have made all low places precarious. One never knows at what point land ends and water begins. It takes courage to wade out there. The crust of salty muck at first holds the weight, then without warning, it breaks through and scratches the ankles and legs, sucking at the feet with every step."

We lightly said, "Well, next time, then—" But we could not know how long an interlude would elapse. Now we are doing those things that are our momentous duties, and Frank Call in his silent salty desert continues his wartime railroad duties, while four of his sons serve their country and another son and daughter are ready to enter the services.

FLIERS RESCUED FROM GRAND CANYON . . .

"All I want is a nice big chocolate ice cream soda; those K-rations were pretty light until the fifth day when an army plane dropped bacon and eggs and 10 pounds of beefsteak," declared sunburned Flight Officer Maurice J. Cruickshank, Lawrence, Mass., as rescuers brought him and two other army fliers from depths of Grand Canyon, where they had been marooned 10 days. He and his companions 2nd Lieut. Charles Goldbloom, Pittsburgh, Penn., and Cpl. Roy W. Embanks, Kalispell, Mont., had made emergency parachute landing at 2 a. m., June 21, on rocky ledge 4500 feet below rim of mile-deep Grand Canyon when they had been ordered to bale out at 12,000 feet after four-motored bomber conked out 28,000 feet above canyon. Rescue parties, by boat with breech buoy gun, mule-back, search lights and flares, and planes from Kingman army air field had sought the men, one of whom they feared lost in wild waters of Colorado river. Experienced mountain climbers of park service finally reached them. It had taken three days for the men to get together. Goldbloom and Embanks had found Cruickshank lying disabled with sprained ankle, the only casualty.

DESERT QUIZ . . .

If you read your Desert Magazine from "cover to cover" as many of our friends declare they do, you'll be able to answer at least ten of these puzzlers within a few minutes. If you are a diligent reader, you will surpass the Desert Rats and take up your position as a Sand Dune Sage. Answers on page 34.

- 1—Modern Papago Indian basketry is made from—
Willow..... Sumac..... Yucca..... Saguaro ribs.....
- 2—When a motorist drives through Titus Portal he enters—
Death Valley..... Valley of Fire.....
Salt River valley..... Hidden Valley.....
- 3—The Morada, found in New Mexico, is a—
Public market place..... A combination church and lodge.....
A religious folk play given at Christmas.....
A small type of Catholic church.....
- 4—Xerophytic is a term often used to describe desert plants. It means—
Spiny or thorny.....
Very scarce..... Adapted to dry climate.....
Useful as food.....
- 5—Pyrope is a kind of—
Garnet..... Ruby.....
Copper..... Agate.....
- 6—Geronimo, the Apache chieftain, was born in New Mexico.....
Arizona..... Old Mexico..... Utah.....
- 7—When archeologists speak of a Mano, they mean a—
Charmstone..... Hammer-like weapon.....
Flaked implement..... Muller.....
- 8—Oldest dated inscription found on El Morro rock in New Mexico is by—
Felipe de Arellano.....
Lujan..... Juan de Oñate..... Fr. Eulate.....
- 9—Desert insect whose tracks are similar to those of a miniature lizard is—
Ciliated sand beetle.....
California Prionus..... Ant-lion.....
Harvester ant.....
- 10—Prehistoric people of southern Arizona are known scientifically as—
Kinsani..... Diné.....
Hohokam..... Anasazi.....
- 11—Length of Grand Canyon is about—
50 miles.....
100 miles..... 150 miles..... 200 miles.....
- 12—These four men—Ives, Powell, Wheeler, Stanton—were—
Botanists..... Indian fighters.....
Colorado river explorers.....
Commanders of military posts.....
- 13—Town of Prescott, Arizona, was named for—
Its founder..... Author of "Conquest of Mexico".....
First territorial governor..... Its first mayor.....
- 14—Miss Mary Wheelwright is best known in New Mexico as—
Founder of Museum of Navajo Ceremonial Art.....
Artist..... Director of guest ranch.....
Fiction writer.....
- 15—Amateur gem cutters will find a good substitute for hard-to-get tin oxide in—
Cerium oxide.....
Hydrogen oxide..... Cuprite..... Diamond dust.....
- 16—Geologists call a surface exposure of an orebody—
Outcrop..... Lode..... Overburden..... Vein.....
- 17—Edgar L. Hewett is best known as—
Museum founder..... Author..... Lecturer..... Archeologist.....
- 18—Recently appointed superintendent of United Pueblos agency, which supervises Pueblo Indian tribes, is—
John Collier..... Dr. Sophie Aberle.....
John Evans..... Dr. Virgil K. Whittier.....
- 19—Oldest beads of prehistoric Southwest Indians yet found were made of—
Shell..... Red shale.....
Turquoise..... Obsidian.....
- 20—Author of "New Trails in Mexico," an account of exploration in southwest Arizona and northwest Sonora, Mexico, is—
John C. Van Dyke..... R. L. Duffus.....
Carl Lumholtz..... Charles F. Lummis.....

The Man Who Heard Music In The Desert Darkness

There are altogether—maybe—thirty or forty people in Shoshone. Not much of a place to rate a dot on a road map—and it wouldn't, except that in the desolate stretches of desert land between Death Valley and Nevada there aren't many people at all. So if you came through Shoshone some sunbright morning you'd have a right to be startled; the music you'd hear would sound like opera. And that's exactly what it would be—a concert of opera music from phonograph records. The story back of this morning concert is one of the most dramatic and human ever lived in the desert.

By WILLIAM CARUTHERS

JACK KENNY, waiting to be assigned a cabin, sat on the bench alongside the store in the little Death Valley settlement. He knew nothing about the desert. He'd heard the air was good for asthma and of course, about that elusive something called the peace of the desert. He had no asthma, but if ever a human needed peace of mind and soul, it was Jack Kenny.

A few prospectors also were on the bench. Unshaven men with overalls and shirts open at the throat. Jack was clad in a smartly tailored suit, modish soft hat and was more accustomed to the deep, easy chairs of swanky hotels than a much-whittled plank.

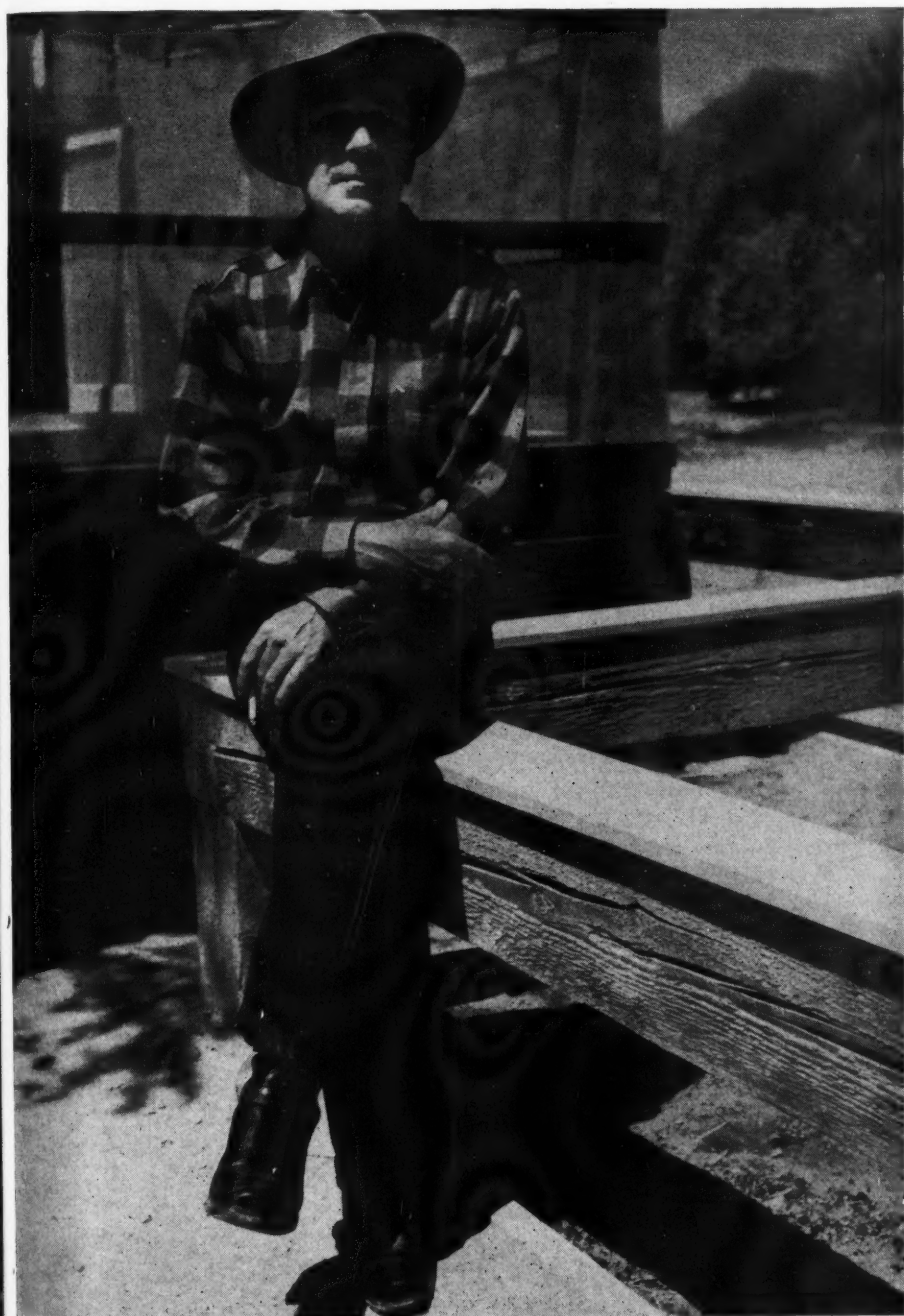
Desert men who spend their lives in the hush of the wide outdoors are a silent sort and aloof. They string out on the bench and gaze into space. One or two grunted a greeting to Jack and resumed their dreamy silence. Jack too was silent, staring as his cane made aimless markings in the yellow dust. He had come to Shoshone to take a one-in-a-million chance, but he wasn't sure he could stand the appalling desolation.

He could hear customers in the store making purchases: "Charlie, I want some powder. Slab of bacon. Roll of Copenhagen snuff. Reckon I can get home with fresh meat? It's 80 miles . . ." And so on for half an hour. And Jack learned that in the lean, hungry wasteland about the Big Sink at the bottom of America, the store isn't just around the block. Now and then came a tall tale and there was laughter—and Jack Kenny needed laughter. Alone at last, he recalled the grim business that had brought him here.

It began in Salt Lake City three years before, as he was walking from the Utah Hotel. A few paces ahead was an open, yawning hole. Beyond was his destination—the offices of the Shell Oil company.

Jack held an important position with

Jack Kenny no longer sits on The Bench staring into space, making aimless markings with his cane in the yellow dust.



Shell, obtained after an impressive record with National Cash Register, Firestone and Goodyear. It was even a glamorous job. It meant luxurious travel. Planes at his disposal. He could keep that job as long as he could keep a secret known only to Jack Kenny. If revealed it would mean loss of the job and a future black as the gaping hole ahead.

Jack carried a cane. "A present from my wife," he'd explained when they kidded him at his office. But now approaching the man-trap, he admitted to himself that he could not much longer conceal the fact that he was blind. With the cane and sheer nerve he had done that incredible thing. Seven years of it in a world being slowly blacked out.

Suddenly Jack's feet stepped upon empty air and he dropped 14 feet to the basement floor. Pedestrians cried out in horror. A policeman ran up excited, but luckily the fall was cushioned by sacked waste paper and after an embarrassing moment assuring the cop that he wasn't drunk, Jack made it back to the hotel and wired his wife to catch the first plane to Salt Lake. "I reckon it's 30 for me," he told her.

It was. The game of blind-man's-bluff was over for Jack Kenny.

Returning to his west coast headquarters, Jack decided to reveal his seven years' deception. Fearful of rebuke, he chose his closest friend to hear the dreaded confession. "Bob," he blurted, "I've bluffed as far as I can. My eyes are gone . . ."

There was no answer. Jack could hear his friend pacing the floor and waited, tense, steeling himself. Bob, he thought, was trying to make it easy. Finally Jack cried: "Come on, Bob. Don't pull your punches . . ."

Then he felt an arm about his shoulder: "Why, you old four-flusher—" Bob laughed. "I've known for a year you were blind as a bat . . ."

That in brief, is the story of Jack Kenny up to 1940.

During the next three years his savings were spent in hospitals both in America and Europe. For ten months he was on his back, his head in a vise. Then came the fateful words, "No hope." In his desperation Jack asked, "What would you do . . . in my place?"

The specialist pondered a moment, then replied gravely, "I would go to the desert, hoping for a miracle. Every day for a few moments, I would stare right into the sun. There may be something in the rays of a bright desert sun that has eluded science. It's worth a trial."



With strips of wood, seen on rail left from saw, Jack is completing walls of miniature model of home he plans to build this summer. Material to be used—railroad ties, that will not warp in desert heat.

And here he was. Broke. Blind. Ahead, the stark problem of bread and meat.

A major task was to learn his way from cabin to store without scratching his face on the overhanging mesquite. Once he got lost and for three hours wandered about the numerous gulches that split the nearby hills. "At such a time, you know what it is to be blind. In your agony you hunger for just one split second of light—even the fraction it takes for the click of a camera . . ."

There are only 30 or 40 people in Shoshone. The coming of a car from the Outside starts a ripple of thrills, and a good dog fight is discussed for days. Soon Jack found himself also interested in dog fights and approaching cars. He noticed there was a good deal of laughter about and people's tempers were even and not crotchety. But still he was uncertain about staying and was mulling it over one day when he picked up a stranger's voice: "I'm in trouble down the road. Suppose I could find anybody around here to help me out?"

"You're dam' right," barked a fellow at Jack's side. "Anybody around here'll help a fellow out . . ."

The answer clicked with Jack. He turned the tailored suit over to the moths, donned overalls. In a little while he was telling most of the yarns and instead of stringing out on the bench, the old prospectors were sliding down close to Jack.

Before a month elapsed a faint glimmer of light began to filter through his eyes. He phoned Mrs. Kenny, who is 90 pounds of amazing courage. Overjoyed she said: "The desert has given you more than the best doctors in America and Europe. You stick it out. I'll carry on."

Jack had learned the way to the swimming pool and on one day of murderous heat as he was floating on his back, he heard birds singing in the mesquite. "What kind of birds are those?" he asked an old timer.

"We call 'em wild canaries. Here all summer . . ."

Suddenly Jack seemed to have an answer to the problem of a living. He would raise canaries. "If the Lord lets his wild birds live around here," he told himself, "tame ones should do as well . . ."

Now, in Death Valley country only the strong survive and a blind man has two strikes against him when he starts. Jack confided his plan to an old timer, who thought it over and announced solemnly: "Can't be done, Jack. Why, I've seen ducks flying over this valley ketch fire and drop out of the sky. Roasted brown and ready to eat. 'Sa fact . . ."

Jack gulped but he wasn't discouraged. He corresponded with breeders, investigated markets. "We can use 3000 birds a year," a dealer in Los Angeles assured him.

Raising canaries involves infinite details of housing, mating and raising the young. Since he would breed only from pedigreed stock, there would be innumerable records. The banding of the young to indicate sex and ancestry is a job for good vision. The friend who read to him the various books on housing and care shook her head. "I just don't see how you can . . ."

The staggering problem only challenged his courage.

Along the abandoned Tonopah and Tidewater railroad were miles of ties. Senator Charles Brown, the big-hearted caliph of Death Valley country, had some of these hauled in and Jack tackled the job. At first he struck his fingers more often than the nails and his sawing was uncertain. But he devised an ingenious dinkus that enabled him to saw straight.

The house built, Jack got some orange crates and made cages with tiny doors and hinges; removable partitions; intricate fittings for food, water, nests, swings and perches. He painted the house and the colorful trim without a misplaced brush mark.

Standing before a hundred highly bred canaries caged along bright shelves, Jack

Jack turned his tailored suit over to the moths, donned overalls and soon was telling most of the yarns to the prospectors.

can name each and tell you its markings. If one bursts into song he will identify the singer. "That's Whitey Bill . . ." or "That's Buckaroo . . ." The birds are named for friends he has made in and around Shoshone.

For an hour every day the birds listen to a phonographic concert of opera. "To teach them true notes," Jack explains. At the first sound of the record a hush comes upon the aviary and then scores of throats pour out a silver melody.

These birds are aristocrats—all of them. Pedigreed, registered. All are Rollers of Metz or Glucke strain. Each represents the ultimate in selective breeding.

An offer of a hundred dollars for Senator didn't interest Jack because he is reasonably sure of getting many times that for the offspring. But there are plenty not so keenly coveted by breeders available to the public. These highly bred youngsters with



ancestry registered for six generations are priced from \$25 upward. Of course they are not for those who rush into a pet shop and say, "Gimme a bird—quick." They

Jack's canaries all are aristocratic Rollers of Metz or Glucke strain. The ancestry of each bird is registered for six generations. They learn true notes from the operatic phonograph records played in their aviary for an hour every day.



are for the discriminating lover of birds, and with infinite pains Jack sees that they get the best.

"How does he do it?" you ask in amazement.

"Guts," they answer.

A tourist under the spell of Jack's contagious good humor remarked, "I'll bet he gets a lot of sympathy . . ."

"Sympathy hell—" snapped a hard-bitten native. "You don't sympathize with Jack Kenny. If you hang around here long enough you'll envy him . . ."

In the desert you become a part of the community and help—or you don't. If you don't—well, the desert is no place for you. From the desert Jack was getting peace, friendship and the promise of seeing again around the long dark corner. He chided himself that he'd found no way to serve. The chance came unexpectedly.

Among the recreational phases of Shoshone is the Snake House—a ramshackle building set apart for men who come out of lonely hills and crave relaxation. They were having a little poker one day while Jack was sitting on the bench wondering what a blind man could do to help put over Shoshone's lagging War Bond drive. He'd been a flier in World War I and his two youngsters are now in this one, while Mrs. Kenny is an essential worker. As he wor-

ried, he heard the grunt of a pig, rustling mesquite beans nearby. Beside Jack sat Whitey Bill, an old timer. "Whitey," said Jack, "you're lean and quick. Can you catch that pig?"

Whitey caught it, tethered its feet. Jack took the pig in his arms, caned his way into the Snake House. "Listen fellows," he began. "This ruckus overseas is costing a helluva lot of dough. Here's a perfectly good shoat. How much folding money will you bid?"

Out of that little shack came \$1800 in cash and pledges. The purchaser gave the pig back to Jack.

"Thanks," Jack said. "If someone will drive me down to Tecopa, I'll sell him again."

There was a chorus of offers and a stampede for the door, to follow Jack to Tecopa. There he found another Snake Room and the pig put the quota over.

Naturally the news of the pig stunt spread throughout Death Valley and when the next drive came, Jack was asked to take charge. "To get the money, I've got to get the crowd," he decided, and going to Camp Irwin, he told his story to the Commanding Officer. "Could you put on a show for us? It's just a little place . . ."

The officer caught Jack's enthusiasm.

"I'll give you the best show Death Valley ever saw. A 45-piece band. A searchlight display visible for 60 miles. An anti-aircraft exhibition to top anything California ever saw. I'll give you vaudeville and climax it with six boxing matches . . ."

From hills, canyons, dugouts and dry washes, came nearly 400 people. Miners. Truck drivers. Muckers. Jack worked until the last car pulled out. The score hadn't been tabulated when he went to bed and next morning he rose early, found Charlie on the bench. "Charlie," he asked anxiously, "how'd we do?"

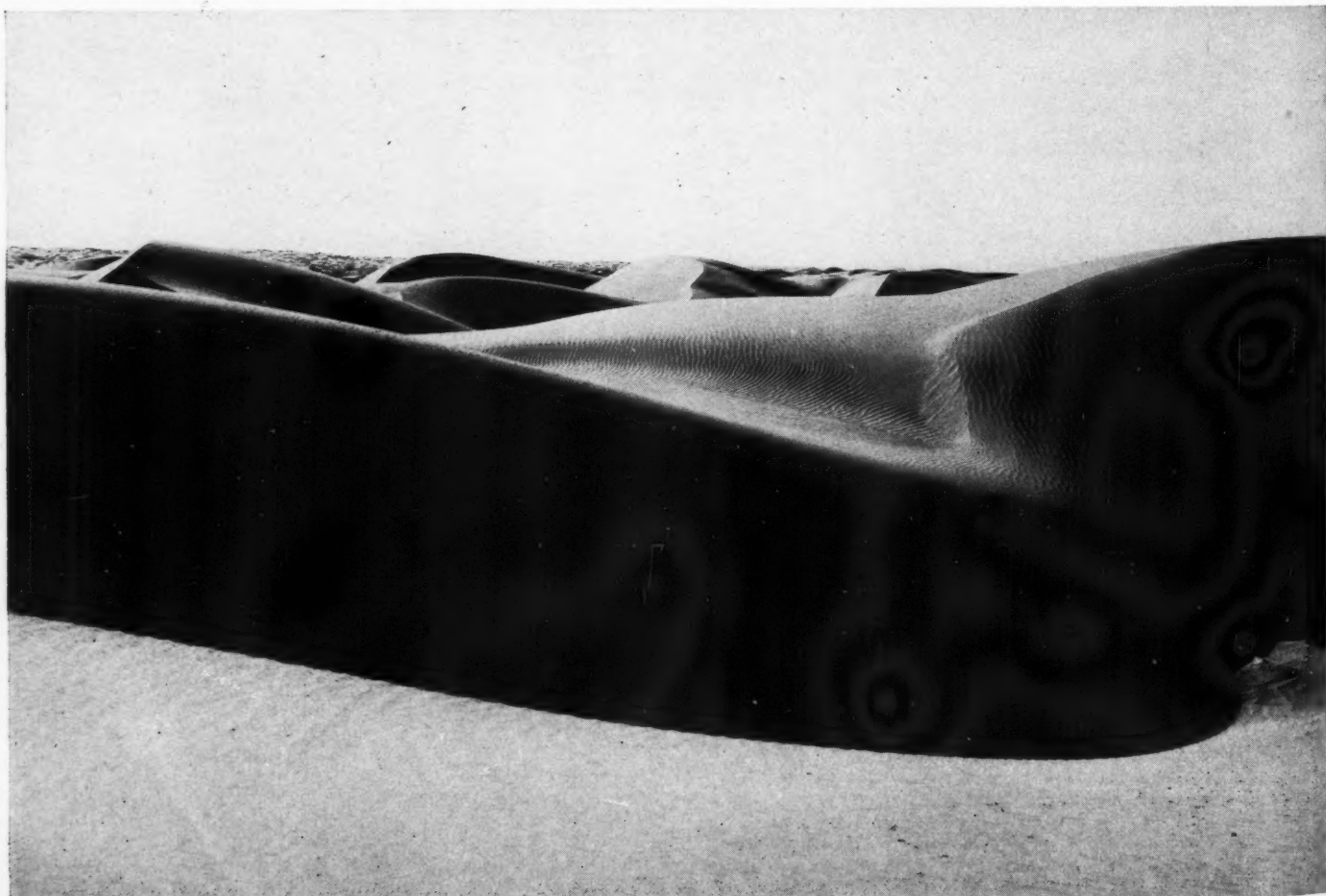
"A flock of pickpockets couldn't do better," Charlie chuckled.

Actually the amount subscribed was more than double the quota and established a per capita subscription for this remote area that is a record for the United States.

Jack settled comfortably on the bench, just as he had done that first day, but on his face now was the glow of peace and contentment.

The old timer who'd told him about the roast ducks that fell out of the sky sat down beside him. "Jack," he said, "you've been around here quite a spell now. How do you like it?"

"Brother," Jack smiled, "that's an easy one. Right out of the heart I can say, 'Thank you, Death Valley.'"



LETTERS...

Cities Essential to Desert . . . Los Angeles, California

Gentlemen:

I enjoy Desert Magazine from cover to cover and am proud and pleased when guests in my home remark about it. But there seems at times to be an "I-am-better-and-wiser-than-you-are-because-I-live-on-the-desert" spirit manifested. This is most open and objectionable in Marshal South's articles. Those of us who live in cities because they contain the only markets for our skills resent this. The fact that we are exiled from the desert is not helped by such an attitude. What would Mr. South and his growing family do when the time came to buy flour and bacon and paper and films and pay the doctor's bills, if it were not for the city folk who earn the money to buy the magazine which prints his articles?

So, please may we have a little less of his chest-thumping, and plainer, more technical data on the mechanics of a mesal roast, adobe brick making, and other ways of sustaining life on the desert? And isn't a desert a desert simply because it is not capable of supporting large populations?

It is my humble opinion that the cities are complementary to rural areas and deserts; that neither population could live as well if it were not for the other. So how about us both abandoning this chip-on-the-shoulder attitude for one of friendly understanding and cooperation?

MRS. JOHN C. BAUR, JR.

For Jeeps Unadulterated . . . Los Angeles, California

Dear Desert:

I want to back up Louis T. Whiteside in his "Jeep" letter in May issue. A jeep without the front wheel drive just isn't a jeep. One might as well get a Model A pickup and let it go at that. The four wheel drive is what gives it the traction for rough going. If we can get them, let's have our jeeps rugged and unadulterated!

LEIGHTON E. WHITSETT

They Want John Hilton . . . Wilmar, California

My Dear Sirs:

Desert is tops. Keep it running along present lines and one of these days you will find it the greatest magazine in the world for those who enjoy something different and love the wide open spaces. I think it is the greatest right now.

Can't you force John Hilton to work a little more? I enjoy his articles very much, and I believe your other readers also like him. Thank you for printing what I like to read.

J. R. SHERMAN

Desert at Sea . . . Southwest Pacific

Dear Desert:

The Desert Magazine always has brought me a lot of pleasure, but now that I have been overseas for ten months, my enjoyment of your magazine has increased a hundred fold. It never fails to divert my mind from the present to the past. Those were wonderful days when there was peace and everyone was free to travel at will. I know that we will win, though, so I am looking forward to the future as well as back at the past.

NORMAN JOHANNESSEN

Desert in an Army Camp . . . Camp Crowder, Missouri

Dear DM:

Your articles on mineralogy have been especially welcome here, for several men in this small company are ardent fans but more or less neophytes at field trips. This Joplin area provides a good many showy specimens, but they almost always have to be purchased, as the mines have largely played out in specimen material.

ROBERT WILLING

Desert on the Home Front . . . Bakersfield, California

Dear Sirs:

You'll never know how important your magazine is to home front workers whose trips to desert places have been stopped for the duration. It brings our beloved wilderness to us to cheer and restore us in our labors and to maintain our love for the desert and its magic.

Please tell Marshal South and his remarkable family how a newspaperman chained to a desk envies him. He's free from telephones, censorship, political anchovies, deadbeats, regimentation and all-round futility. He has his worries, I realize, but at least he can combat his difficulties with his own intelligence and his own sinew and he hasn't half a million human frailties to crop up 18 hours a day to crease his brow and disintegrate any belief he may have entertained that the human race has progressed noticeably since the time of the Borgias.

Relay to John Hilton my hope that he finds enough dough in his mine to stop worrying about it and do more writing. We want more stuff from Charles Kelly and Ed Ainsworth, Catherine and Dick Freeman and George Bradt, that ornithologist in the army. And keep my regards for fine magazine editing, month after month. It's been wonderful.

RALPH F. KREISER

Ripley Wrong on Fairy Stones . . . Chicago, Illinois

Dear Lucile:

In May, 1940, I had an article in your DESERT entitled "Stones Where the Fairies Danced," written under the name of Mrs. White Mountain Smith. I stated that staurolites, known as Fairy Stones or Fairy Crosses, are found in many other sections besides the Fairy Stone state park in Patrick county, Virginia. My attention has been called to a Believe It or Not item which says "perfect crosses of stone are found only in Patrick county, Virginia." Unless Mr. Ripley has some information not in possession of either Encyclopedia Americana or Encyclopedia Britannica, as well as Kraus and Slawson, I think his statement can be questioned.

The above authorities state that staurolite is very common. "From their cross shaped penetration they are called (Greek) *stauros*, a cross, *lithos*, a stone. This twinned crystal abounds in many of the crystalline schists, such as mica crystalline and gneiss. Important occurrences are Monte Campoine, Switzerland, Fannin county, Georgia, and in scores of localities in New England and North Carolina. It is found sparingly in Brazil."

The Field Book of Geology states that these twinned crystals are found all along the eastern side of the Appalachian mountains. I personally have collected them near Taos, New Mexico.

Just what qualifications Mr. Ripley may attach to the word "perfect" may have some bearing on his statement, but I should like to have his explanation. I know how carefully Mr. Henderson and you always have checked material appearing in Desert, and for that reason I have gone into this matter very thoroughly.

MARGARET STONE

Tucson, Arizona

Dear Miss Harris:

Believe It or Not Ripley is not the only one who has the mistaken idea that the little staurolites are found only in the Blue Ridge mountains of Virginia. I have a folder from Natural Wonders, Inc., Harrisonburg, Va., which states that the world's only known supply of these Fairy Crosses comes from Patrick county, Virginia. The next statement on the folder rather deviates from facts: "The origin of these stones is unsolved. Leading scientists and geologists have been baffled in their attempts to find a satisfactory explanation of this phenomenon."

My Webster's Collegiate dictionary gives an explanation with no mystery mentioned. I have a nice collection picked up from the mountain near Talpa in the Taos area. My father told me that President Wilson took one of these good luck charms to Paris to that world famous conference.

MARION ESTERGREEN

"Children of the Earth" . . .
Hollywood, California

Dear Editor:

In your July issue, Albert Lloyd asked for information about "Child of the Earth." This queer insect's habitat apparently includes San Fernando valley as well as deserts and mesas of the Southwest. They were especially numerous before we cleared and landscaped our place.

His informant was correct when he says they look like an infant. You can almost detect an expression of surprise on their round faces when you turn one up in the soil. They have a fat, round body, tapering at the end, with striped bands of black and brownish yellow. The largest we have seen was two inches long. The head is round, about the size of a large pea, with two protruding black eyes. The legs are fairly long. They have a hard shell-like substance protecting their bodies.

MISS ALLIDA ALLEN

Los Angeles, California

Editor:

For information on Children of the Earth, see page 207, April, 1944, issue of Nature Magazine, which has an interesting article with photographs on the subject. Nature Magazine is published at 1214 16th Street, N. W., Washington, D. C.

ROBERT JOHNSON

Desert in South America . . .
Lavras, Minas, Brasil

Dear Desert:

Your magazine brings the desert to us wherever we may be. We can feel that warm dry healthy air. To plow through your pages is to plow through the sand and see and experience the desert. You bring us up onto the windswept peaks; we can almost feel that crackling-prickling sensation of warmth often noted on those high piñon and juniper covered slopes. It would be hard to say what I like best. But John L. Blackford's photos certainly do take my breath away; sometimes the inspiration which is within them is almost surreal.

I like the scientific way in which Carroll D. Scott puts nature-debunkers on the spot (April, 1944, Letters). Couldn't you get him to publish some of his studies? I know we'd all enjoy them.

I always like your quiz. I'm usually lucky if I get 12 out of 20. Once you left it out and I felt disappointed. It not only shows what we don't know but helps to build up our knowledge of desert lore.

Here in Brasil there is no such thing as a desert. There is the famous *caatinga* of the northeast, but it is more a thorn-forest. It is generally made up of thorny Leguminosae and Bromeliaceae with some Cereus. Also a milky Euphorbia, Pau Fosforo.

I have *saudades* roxas of the desert. I'd

like to pop into Desert Steve's for a buttermilk or a glass of goat-milk, or drive up into Whitewater canyon, or climb some of those peaks like Telescope, Charleston, San Francisco . . . but through enchanted pages we get all of those things from the Desert.

GEORGE BLACK

Call for Jerry Laudermilk . . .
Klamath Falls, Oregon

Dear Friends:

Since receiving your magazine last October, I have become so well acquainted with all you nice people that I feel I can address you as my Dear Friends. Frequently I have felt like sitting down and writing you how much I enjoy all your articles.

I have read letters for and agin' poetry and think that the "fors" win hands down. Several times I have been impressed with the special beauty of some one poem and feel that all the other not so fine poetry is worthwhile if it will produce a gem now and then. I know when hunting flower agates at the Priday ranch, I have to paw through what seems to me to be tons of stuff before I find a perfect flower.

Please! MORE articles by Jerry Laudermilk. I also like the Souths and wish I had the courage to say "to heck with the world" as successfully as they have.

DOROTHEA BECKWITH

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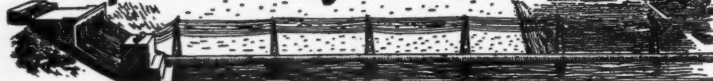
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HERE AND THERE... on the Desert

ARIZONA

Lion Hunters Balked by Chulu...

TUCSON—The Mexican chulu or coatimundi, relative of North American racoon, is appearing in such numbers in southern Arizona that lion hunters are having difficulty in hunting cougars. They are being forced to put wide leather collars on their hounds to protect them from the chulus which sometimes put whole packs of hounds to flight. Chulu has a long tail and flexible snout with which he roots for food much as the domestic pig. But he is equipped with fangs and can put up vicious fight. Immigrating from Mexico, it first began appearing in appreciable numbers in 1920. It first was reported in Santa Rita mountains in 1937 but now seems to be well scattered throughout the southern counties.

Tourists Desecrate Boothill...

TOMBSTONE — Citizens of this famous old silver-mining town are becoming alarmed over the vandalism which is fast obliterating many of its shrines, notably the graves of Boothill cemetery. Only four markers with legible inscriptions remain. Headstones have been so stripped by souvenir hunters that identification is fast becoming impossible. Names and addresses of passing tourists have been written on some of the few remaining markers. Exquisite four-foot slab of petrified wood, placed a few years ago on grave of famous Quong Kee, is at present chiseled down to a level with the cement in which it was embedded. Residents had tried to protect the grave with a fence of ocotillo stalks but some of these have been removed and defacing continues.

Fish Catches Lions...

TOMBSTONE—Mountain lion weighing 81 pounds recently was trapped in the Huachuca mountains by Charles Fish, Jr., government mammal control agent. It was believed to have killed several deer in that region. This is the seventh lion Fish has trapped in two-year period. Short time ago he captured a lobo wolf which had been killing calves.

Indians Disillusion Hollywood...

CHINLE—Navajo Indians presented dual problem to Hollywood company filming technicolor "Queen of the Nile" near Canyon de Chelly. At first their mock fighting was too mild to suit Hollywood. Next, 157 of the tribesmen who had donned Egyptian costumes, were painfully sunburned, 72 of them in one day requiring treatment from studio doctor.

British Learn About Indians...

ORAIBI — Traditional misconceptions of American Indians are being broken down in England. They are learning over there about Indians from 2nd Lt. Ethel I. Jenkins, 23-year-old Hopi Indian girl, who is serving as U. S. army nurse. "I don't carry hidden tomahawks, my father never helped to massacre pioneers." When a reporter noticed her long bob and asked if that hair-do were popular with modern Indian girls she replied, "Indian girls started cutting their hair into bobs long before the whites." Her father Sam Jenkins, one of five brothers all of whom operated trading posts, was one of tribal representatives in enactment of Indian constitution. Lt. Jenkins, typical artist's conception of an Indian girl, was born here, attended Kirkwood memorial high school at Ganado, completed the three-year course at Sage Memorial school of nursing, the only school of its kind in America, for its students must be at least one-fourth Indian. After receiving her R. N. degree in 1941 she was member of nursing staff at Hopi agency hospital, Keams Canyon. She was commissioned October 6, 1943, entering Camp White, Oregon, for her basic training. She speaks English, Hopi and Navajo; chief hobby is music.

University to Study FM...

TUCSON—University of Arizona is one of 59 state universities and colleges which will study and make recommendations on use of FM (radio frequency modulation) to provide educational program service to every school in the nation. Service would be transmitted over five wave lengths now allotted to education. Charts are being made to show how transmitters may be linked or overlapped to create state-wide educational network, by R. R. Lowdermilk, radio specialist of federal office of education. States asking for service charts supply the office with a list of probable program production centers.

Good Buffalo Crop Predicted...

FLAGSTAFF—First buffalo calves of the season were appearing end of June on House Rock valley range, reports Wayne A. Lathim, deputy game warden on North Rim of Grand Canyon. At end of last spring's buffalo hunt 201 animals remained. Usually 25 per cent calf crop is expected. Ancestors of present herd were brought to Arizona early in the century. In 1926 the state purchased 87 head which since have been under administration of state game and fish commission.

CALIFORNIA

New Hope for East Mesa Work...

EL CENTRO—New hope for development of East Mesa lands of Imperial Valley was seen in report by secretary of interior Harold L. Ickes to U. S. senate committee on postwar economic planning containing list of 236 potential and multiple purpose projects in 17 western states, which could be included in postwar public works program. Report named 22 projects for region three, comprising Arizona, southern California, southern Nevada and western New Mexico, to come into being if the bureau be authorized to carry out the construction. Projects, said report, would irrigate 872,905 acres of new land and supply supplemental water to 456,000 acres. Report added, "Two projects in region three, the All-American canal in California and the Mesa Unit of the Gila Project in Arizona, which have been authorized and on which construction is now underway, will provide irrigation water for 433,000 acres of new lands and supplemental water for 20,000 acres now irrigated..."



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New Brochure on Monument . . .

TWENTYNINE PALMS — Joshua Tree national monument, scenic area of nearly a million acres south of here, is receiving wide publicity in form of descriptive brochure just released by park service and announced by 1st Lt. James E. Cole, custodian who has just returned from 18 months army service, on inactive duty. Monument is especially noteworthy for fantastic rock formations, interesting geological formation and variety of plant life. Address Custodian, Joshua Tree National Monument, Twentynine Palms, Calif.

Tules May Supplant Kapoc . . .

BLYTHE—Cattail, flower of the tule or bullrush, may become an important wartime substitute for kapoc, now controlled by Japan. C. Hooton, field superintendent Burgess-Manning company of Chicago, is surveying supply from Las Vegas to Mexican border. Southwest desert variety seems to be larger and harder than the average plant. They line shores of Colorado river and portions of Salton Sea. Uses include stuffing for pillows, life preservers, mattresses; insulation, softballs.

Paul A. Jenkins, El Centro newspaper publisher, became owner of Brawley News in June, it was announced by M. Ethel Witter, former owner.

Guayule Projects Continued . . .

INDIO—Federal guayule rubber experimental program was extended another year by house of representatives June 20, with vote of 299 to 43. Active spokesmen argued "it would be foolish to terminate the work" when "we've spent more than \$30,000,000 on this project already." About 32,000 acres of guayule are growing in California, Texas, Arizona and New Mexico.

Climbers Shuffle Statistics . . .

DEATH VALLEY — Mt. Whitney, towering above this sink at elevation of 14,496 feet, usually is given credit for being highest peak in United States. But a group of Trona residents, led by park ranger Harold Schaafsma, after recent climb up Telescope Peak, give the honors to the latter. This is the way they figure it: Elevation of Telescope is 11,045, but to reach its peak from Bad Water one would have to climb 11,324 feet, for Bad Water is 279 feet below sea level. Whereas if they had started up Whitney from Owens valley they would have climbed but 10,670 feet, 654 feet less than climb up Telescope! However, they "fudged" just a little, for they started their actual climbing from Mahogany Flats at an elevation of 7500 feet—they just felt in a statistical mood.

NEVADA

Pahute Indian Chief Dies . . .

CARSON CITY—Chief Harry Lossing, 55, of Fort McDermitt Indian reservation, well known Pahute Indian and "one of best cattlemen in the country," died here recently, a victim of pneumonia. He was valuable assistant to government officials in effecting progress of his tribe.

State Survey May be Completed . . .

RENO—Five year project to survey Nevada lands is planned for postwar period. Harry S. Palmer, engineer of local public survey office, estimated slightly less than one-fifth of state's area remains unsurveyed. Most of such land is in southern and central Nevada, though there are small scattered portions all over the state especially in mountain areas. Peak of survey work on mineral surveys was in 1908 when much of federal land was being considered for mining claims for patents.

Naval Air Station Commissioned . . .

FALLON—Commissioning ceremonies for new \$5,000,000 naval auxiliary air station were held here June 10, when Commander Albert F. Rice took command. In an address before naval personnel and about 1000 civilians, Captain Walter V. F. Boone, commandant of naval air center at Alameda, California, said site had been chosen for fine flying weather, including annual precipitation of less than five inches, 233 cloudless days, 220 days of wind velocity not exceeding 25 miles per hour.

"Bunkhouse" Writer Dies . . .

BOULDER CITY—Alone in his tiny trailer home in secluded Bootleg canyon with only his small dog for companionship, C. A. "Biz" Bisbee, pioneer resident and former circulation manager of Boulder Journal, died June 2. His whole life was devoted to newspaper work. He owned a paper in Montana, then went to California. When Boulder dam was assured he pulled his trailer into the desolate desert area which soon was to become the model community of Boulder City. He became mouthpiece for construction workers, writing of their joys and sorrows, hardships and gaieties during roistering days of the building of Boulder dam. He became widely known through his column "Bunkhouse Bunk," printed in Las Vegas Evening Review-Journal and Boulder Journal. Through circulation work, he exerted wide influence on youths who worked with him, teaching them salesmanship and responsibility, encouraging them in worthwhile endeavors. Scorning the comforts of a home, "Biz" remained in his trailer where he could enjoy the solitude of the desert he loved.

The Desert Trading Post

Classified advertising in this section costs five cents a word, \$1.00 minimum per issue—
Actually about 1½ cents per thousand readers.

MISCELLANEOUS

For Sale: Complete Lapidary Shop, with five motors, show cases, many minerals and gem materials. Call Sundays from 9 a.m. to 6 p.m. H. Cotterman, 5118 Granada St., Los Angeles 42, Calif., in Highland Park.

RESEARCH FACTS and EXPLORATIONS that touch life, change viewpoints and suggest better living standards. Address: BASIC-RESEARCH LABORATORIES SYSTEM, 785 Lafayette Street, Denver 3, Colorado.

FOR SALE—Indian relics, 23 assortments from which to choose, \$1.00 per assortment or \$20 for all 23. All perfect specimens. Choose from these: 10 beautiful prehistoric Indian arrowheads; 10 tiny bird arrowheads; 10 arrowheads from 10 different states; 2 stone tomahawks; 4 spearheads; 5 stone net sinkers; 10 fish scalars; 2 hoes; 4 agate bird arrows; 5 flint drills; 7 flint awls; 10 beautiful round head stunning arrowheads; 4 fine sawedged arrowheads; 4 fine flying bird arrowheads; 4 fine drill pointed arrowheads; 4 fine queer shaped arrowheads; 4 rare double notched above a barbed base arrowheads; 5 double notched above a stemmed base arrowheads; 12 small knife blades of flint; 1 rare shaped ceremonial flint; 3 flint chisels; 7 crystals from graves; 10 arrowheads of 10 different materials including petrified wood. Locations given. 100 arrowheads \$3.00. 100 very fine mixed arrowheads all perfect showy colors including many rare shapes such as drill pointed, double notched, saw edged, queer shapes, etc., location and name given, \$25.00. List free. Lears, Glenwood, Ark.

Large stock of petrified palm. Twenty tons of rock specimens. Navajo rugs, reservation hand hammered silver and baskets from many tribes. Many other handmade artifacts. Daniels Indian Trading Post, 401 West Foot-hill Blvd., Fontana, Calif.

GIFT BOOKS of the Southwest. For outstanding titles on the desert country—Travel, History, Desert Plants and Animals, Gems and Minerals, Indians, Juvenile—write Desert Crafts Shop, 636 State St., El Centro, Calif. Free catalog.

LIVESTOCK

KARAKULS producers of Persian Lamb fur are easy to raise and adapted to the desert which is their native home. For further information write Addis Kelley, 4637 E. 52 Place, Maywood, California.

"Karakul Fur Sheep — America's Great Livestock Opportunity—You can be a part of this fascinating business and have your Karakuls cared for by experienced rancher. Write for details, James Yoakam, National Distributor, 1128 No. Hill Ave., Pasadena, California."

REAL ESTATE

For Sale: Cabin and eighteen acres on creek. Aguanga, California. F. L. Johnson, 714 W. 104th St., Los Angeles, Calif.

For Imperial Valley Farms—

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EL CENTRO — — — CALIFORNIA

NEW MEXICO

Tribal Show Big August Event . . .

GALLUP—Inter-Tribal Indian ceremonial, to be held here August 11, 12 and 13, was assured of presence of two of the most colorful tribal members—the Hopis from Second Mesa, northern Arizona, and the Apache Devil Dancers from Mescalero Apache reservation of southern New Mexico. For a number of years participation by Hopis was suspended due to interpretation of tribal prohibition of dances off reservation, but ruling last year restored Hopis to program. Apaches could not attend last year because of lack of transportation, but they are planning to attend this summer and to give a Crown (Devil) dance, War dance, Back and Forth dance.

Silversmiths Hurt by Ruling . . .

GALLUP—United Indian Traders association is seeking relaxation of WPB order, effective May 15, which they claim works undue hardships on Indian silversmiths. Order's purpose was to overcome abuses by silver manufacturers who had branched into so-called "hand work" divisions to avoid quotas placed on manufactured silver. It restricts hand silver workers to 500 ounces or 25 per cent of silver used in 1943. But Navajo have no record of their production, so could not establish quota rights. Moreover they have no way of making silver findings such as ear screws, chains and pin catches as the order requires, and they are denied by the order the right to furnish scrap silver to manufacturers on a "toll basis" to be reprocessed into slugs, sheets, wire or to be made into findings. Furthermore by prohibition that persons who did not do silver work for at least six months in 1943 might not enter the business, Navajo silversmiths returning from war are handicapped. Further restrictions cause even more hardships, but M. L. Woodard, president of the association believes order will be worked out satisfactorily since purpose of order apparently was not intended to interfere with Indian hand work on the reservation.

Noted Artist Redin Dies . . .

ALBUQUERQUE—Carl Redin, 52, who won prominence as an artist during his 25-year residence in New Mexico, died June 19 at Los Gatos, California. He had been state president of the Art League, instructor at University of New Mexico. He and his wife left here in 1941 to live in a lower altitude at Hemet, California. The former Swedish sailor, who became famed for "Redin aspens" had been recognized by Swedish government with purchase of his work for the royal museum. He was twice-winner of national exhibits sponsored by Swedish-American society in Chicago.

T-2 tanker being constructed by Kaiser shipyards at Portland, Ore., will be named for Chaco Canyon national monument.

Navajo Makes Jewelry in Italy . . .

RAMAH—Fighting on Italian front did not stop craftsmanship of Thomas Jose, local Navajo silversmith. During his spare time he has been making bracelets from metal of wrecked nazi airplanes and selling them for \$15 each. "It's one of the best ways I've found to kill time," he wrote.

UTAH

Prehistoric Museum Planned . . .

VERNAL—Utah's postwar plans, according to H. J. Plumhof and Ora Bundy, state publicity department, call for museum here which would house recreations of prehistoric life, serve as information center for tourists and be used as national summer school for research and study by advanced paleontology and geology students. Uintah basin is one of country's richest fields for geologists and paleontologists. Exposed formations in Uinta mountains extend from Cenozoic to Proterozoic era, an immense period which gives a "near-crosssection of the earth." Dinosaur national monument, about 12 miles northeast of here, is one of the most remarkable dinosaur fossil deposits discovered. Oldest fossilized ants yet found were taken from Green river oil shales of Uintah basin; oldest sabre toothed mammal, a creodont, is from Devil's playground in this area; oldest fossil rabbits recorded are from Uintah's Pleasant valley wash. Evidences of prehistoric man also are found here. Vernal project would feature life-like reproductions of prehistoric life that roamed the region millions of years ago, and serve as information center on ancient and modern Indian tribes.

Capital May be British Model . . .

SALT LAKE CITY—This city, laid out by Brigham Young and noted for its broad, straight, long streets, may become model for rebuilding of blitzed Coventry, England. Aerial map of this Utah capital has been sent Coventry town architect by Dr. Arthur Massey, health officer of the English town, who recently addressed Utah public health association. "Salt Lake City," he said, "is an admirable example of what town planning should be."

Esthetics vs. Husbandry . . .

BEAVER DAM—Members of state agricultural commission find themselves in much the same predicament as the Lord High Mayor in the Mikado. As lovers of natural beauty they would like to see the Flanders poppies stay in the fields of Box Elder county, but as protectors of agriculture it is their duty to declare the poppy a noxious weed and make plans to exterminate it. Poppies are reported to be overrunning as high as 60 per cent of wheat fields in this important wheat growing section.

Wallace M. Bransford, 63, an organizer and director of Park Utah mining company, apartment house owner, sportsman, died in Salt Lake City, June 5.

At Utah bankers' association June convention, N. D. Salisbury, assistant vice-president, First Security bank, Logan, was elected president for coming year.

A WESTERN THRILL

"Courage," a remarkable oil painting 20x60 feet, the Covered Wagon Train crossing the desert in '68. Over a year in painting. On display (free) at Knott's Berry Place where the Boysenberry was introduced to the world and famous for fried chicken dinners with luscious Boysenberry pie.

You'll want (1) A 4-color picture of this huge painting suitable for framing. (2) A 36-page handsomely illustrated souvenir, pictures and original drawings, of Ghost Town Village and story of this roadside stand which grew to a \$600,000 annual business. (3) One years' subscription (6 numbers) to our illustrated bi-monthly magazine of the West. True tales of the days of gold, achievements of westerners today and courageous thoughts for days to come. Mention this paper and enclose one dollar for all three and get authentic western facts. Postpaid.

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Mines and Mining . .

Washington, D. C. . . .

The administration is planning international conference of allied and associated nations to arrange equal postwar access to all essential raw minerals. Primary consideration will be given bauxite (alumina), copper, iron ore, lead, petroleum and zinc. Secondary, to manganese, chrome, tin, mica, industrial diamonds and quartz crystals. In addition to state department interest, department of justice is interested from standpoint of watching tendencies to revive prewar cartels and nationalistic policies of large owners of natural resources. Bernard M. Baruch and Dr. C. K. Leith are mentioned as likely to head U. S. committee at the conference.

. . . .

Salt Lake City, Utah . . .

Coal mines administrator Harold L. Ickes has released from government control all soft coal mines in Utah. Order affects about 17 large companies which produce more than 3,000,000 tons of coal annually. Control of mines in this state, in effect since last November due to labor troubles in eastern U. S., has made little practical difference in operation, according to B. P. Manley, executive secretary Utah coal operators' association.

. . . .

Washington, D. C. . . .

In announcing that magnesium and aluminum will be released for civilian consumption, war production chief Donald M. Nelson said he would not hesitate to revoke relaxation should it interfere in any way with war production program. Heretofore only small amounts of magnesium have been available for postwar experiments. Release of aluminum is expected to allow production of many items which have been banned during the past two and one-half years.

. . . .

Geneva, Utah . . .

Geneva Steel plant, largest of the more than 2300 projects financed by Defense Plant corporation, was scheduled to go into production July 1. E. M. Barber, member of U. S. Steel corporation for 20 years and vice-president in charge of Columbia Steel company's defense plant division, has directed Geneva's growth from blue-print stage in December, 1941. Since that time about \$196,000,000 has been expended in construction, building railroads, developing and equipping Geneva coal mine, iron mines in Iron county and limestone and dolomite quarry near Payson.

Kingman, Arizona . . .

A rare metals electronic plant is being installed by W. L. Cummings, research engineer and his associates on highway 66 near McConico about three miles west of here. Such rarities as lights to penetrate the fog, which will aid fliers as well as motorists; infra-red light, cells and other electronics equipment; television lenses, infra-red spectrograph and mass-spectrometer for studying the elements; complicated electronic instruments made of glass tubes, wires, infra-red lights, and a fully equipped research laboratory, all will be assembled for work dealing with development and refinement of rare metals for industries contributing exclusively to the war effort.

. . . .

San Francisco, California . . .

Revised edition, *Manner of Locating and Holding Mineral Claims in California*, by A. H. Ricketts, has been published as Bulletin No. 127 of state division of mines. It is a brief simple outline covering salient features needed by average prospector and claim owner in initiating and maintaining his possessory rights to mineral ground, issued at 25 cents plus one cent sales tax for California residents. These and other phases of American mining law, both statutory and interpreted by judicial decisions, are dealt with in detail in an extensive index in Bulletin 123, *American Mining Law*, by Ricketts, at \$5.00. Address Division of Mines, Ferry Bldg., San Francisco 11; State Building, 217 W. First street, Los Angeles 12; or State Office Building, Sacramento 14.

. . . .

Mason, Nevada . . .

Flufftrok corporation estimated its headquarters plant here would be complete July 1, including Hammar mill and kiln for processing pearlite into insulating material from which wallboard, plaster lathe and blown insulation will be made. Raw material is trucked from company's mine at Bodie. When treated with heat, material expands 20 times normal size.

. . . .

San Francisco, California . . .

In reply to the many inquiries as to whether mining claim holders must do assessment work this year, California division of mines, Ferry building, San Francisco, is giving out mimeographed copies of Act of Congress signed May 3, 1943, suspending assessment work for the duration, together with a suggested form for the notice of desire to hold such claims.

Los Angeles, California . . .

Report of fifth survey of mining activities in Nevada has been compiled and published by domestic trade department, Los Angeles chamber of commerce. Mimeographed and indexed report titled *Nevada Mines Sales Opportunities, 1944*, has both accurate and detailed information for manufacturers and distributors of Los Angeles county and aid to Nevada prospectors and operators for finding outlets for their products. Mines are listed by counties, each including name of owner and operator, ore produced, location, type of products, size of personnel, and other pertinent information.

. . . .

Boulder City, Nevada . . .

U. S. bureau of mines has built a pilot plant here to run gasification tests on coal from Coaldale, Nevada. Washed coal it is said can be gasified in a gas producer for use in production of sponge iron.

. . . .

Jacumba, California . . .

Mica Gem and Milling corporation started operations at its mica property in this district May 1. Mining is by open pit method, 25 tons millrock being crushed and screened daily. San Diego owners are Edward Boughton, secretary-treasurer, Thomas J. Williams and John Dahl.

. . . .

Salt Lake City, Utah . . .

Acute labor shortage in Utah mines and heavy industries is causing lag in fulfilling war demands, indicates survey by U.S. employment service in Salt Lake area. Area includes all mines in Summit county and several large foundries in Salt Lake City, which require 5,000 men to maintain steady production. Said Kenneth B. Johnson, local USES manager, "An unwarranted wave of optimism which is sweeping the country is taking essential and needed workers from their jobs, and the situation is approaching the critical stage."

. . . .

Tucson, Arizona . . .

Series of articles on early history of the Tucson meteorites, the "Irwin-Ainsa" and the "Carleton" irons, written by P. J. McGough and originally published in *Popular Astronomy*, has been reprinted in pamphlet form for distribution to members of the Society for the Research on Meteorites, an international scientific society. McGough, since retiring as owner of Navajo-Hopi trading company in Flagstaff, has been studying meteorites as a hobby. Each year one of the outstanding contributions to the subject is printed.



VENTURE NOT TH

Ventura cliff between known century, but fort been n Victor M discovered ing out of of the hill, of the out that a stron of the unp the cliff th near.

The fire ago and th few weeks slide uncov and resultin C. Orr, geo of natural burning asp in oil regio the El Para

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FLUORES FOUND

Among t ancient lava cumba, Cal many piece range from sections. So either chal fluoresces red, and the when coated composed of veins of sem streaks of quartz light.

COPPER FOR SYN

Dr. A. A. pany, N. Y. can chemical that copper agent in pr Two compo any of the use. The ex not been p Somerville H per and four far more so

GEMS AND MINERALS

ARTHUR L. EATON, Editor

VENTURA'S "BABY VOLCANO" NOT THE ERUPTING KIND

Ventura's "baby volcano," located high on a cliff between Ventura and Santa Barbara, has been known intermittently for almost a whole century, but only once in that time has any effort been made to explain the phenomenon.

Victor Moreno, Southern Pacific watchman, discovered a column of smoke and flame pouring out of the asphalt shale high up on the side of the hill, about six weeks ago. The intensity of the outburst varies, but at times he reports that a strong down draft of wind brings so much of the unpleasant smoke down to the base of the cliff that it becomes impossible to remain near.

The fire seemed to die down about ten years ago and thus faded out of public notice. But, a few weeks ago, possibly as the result of a landslide uncovering the mouth of a cavern, the fire and resulting black smoke burst out again. Phil C. Orr, geologist of the Santa Barbara museum of natural history, declares that it is a vein of burning asphaltum, an occurrence not unknown in oil regions, and in no way a real volcano of the El Paracutin type of Mexico.

The Ventura Signal, newspaper of last century, stated in 1874 that it was caused by a brushfire setting fire to outcroppings of native sulphur. However, the Ventura county fire department recently took pieces of the shale loosened by the fire to a Santa Fe springs company for analysis, and the results seem to show that it is only a fire in an underground cavern, from an underground deposit of asphalt.

FLUORESCENT SEMI-OPAL FOUND NEAR JACUMBA

Among the shattered and crumbling bits of ancient lava on the mountain sides east of Jacumba, California, have recently been found many pieces of pure white semi-opal. These range from small chips up to two or three-inch sections. Some are found as half inch veins in either chalcedony or calcite. The semi-opal fluoresces bright yellow, the spots of calcite red, and the transparent chalcedony shows pink when coated over calcite. Some large specimens composed of spots of calcite and chalcedony, veins of semi-opal, and reflections of violet from streaks of quartz, are very showy under the cold quartz light.

COPPER DECLARED SUPERIOR FOR SYNTHETIC RUBBER

Dr. A. A. Somerville of R. T. Vanderbilt company, N. Y., at New York meeting of American chemical society's rubber division, declared that copper has become a new and effective agent in producing Buna S synthetic rubber. Two compounds of copper are much superior to any of the other chemical compounds now in use. The exact effect of copper on rubber has not been published, for military reasons. Dr. Somerville has tried many compounds of copper and found them all more or less effective, far more so than compounds of any other metal.

ULTRA-VIOLET PROSPECTORS FIND SCORPIONS FLUORESC

An interesting occurrence, as well as a warning to those persons interested in night prospecting with an ultra-violet light, was reported from San Diego county, California. Two prospectors were searching for scheelite. One person was holding the light, while the other investigated any fluorescent specimens which might appear. As the second prospector was about to pick up an inch specimen of what seemed to be a brilliantly fluorescing piece of scheelite, suddenly it moved! Further, careful investigation with white light showed it to be a large scorpion. The men report the color of fluorescence to be very much the same as that of scheelite tungsten.

ALAMEDA COUNTY MINERALS LISTED IN STATE BULLETIN

George L. Gary, mineral technologist, has compiled the following list of minerals, all found in Alameda county, California, for Minerals of California bulletin 113: albite, alunogen, analcime, analcite, aragonite, bementite, blue vitriol, boothite, bronzite, brown hematite, calcite, chalcantite, chalcedony, chalcopyrite, chlorite, chromite, cinnabar, copiapite, copper, copper pyrites, copperas, dolomite, enstatite, epsom salt, epsomite, feldspar, halite, halotrichite, hematite, hydromagnesite, inesite, iron alum, iron pyrites, kammerrite, lawsonite, limestone, limonite, lithographic stone, magnesite, magnetite, manganite, melanterite, natrolite, red ocher, penninite, pisanite, psilomelane, pyrite, pyrolusite, pyroxene, quartz, rhodochrosite, rhodonite, salt (common), talc, vivianite, wolastonite, zarate, zeolite (see analcime), zircon.

COLORFUL MINERALS

FLUORITE—Ca F₂

A very colorful mineral is fluorite. Most amateurs first notice all the bright colors—all shades of purple and lavender, blue, green, rose, yellow and combinations of two or more colors. New Mexico and other states have produced beautiful specimens of several colors, many of them showing rainbows on one or more fractures or cleavages. The crystals of fluorite are commonly cubes and clusters of twins, although octahedrons and fine cleavages are common. An entire collection of very colorful and showy specimens can be made of fluorite, including numerous clusters in many colors.

COLLECTORS' ITEMS

In my excavations in prehistoric mounds, at Wickliffe, Kentucky, and other DIGS, I have accumulated thousands of duplicates which I have decided to dispose of to other collectors at very reasonable prices. Since this is not a business with me, I cannot bother with anything less than a \$5.00 order. Remit with order, and if goods are not satisfactory, money will be refunded.

The following are a few of my collectors' items. Some are definitely unique and all are guaranteed genuine:

- Beautiful Kentucky Crinoid Buds—15c to 25c
- Kentucky Crinoid Joints and Stems—15c to 25c
- Large Buds 50c to \$1.00 each
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- Prehistoric Spear Points.....75c to \$2.00
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- Prehistoric Mound Beads, 2-ft. String, \$2.50
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AMONG THE ROCK HUNTERS

At the regular meeting of Los Angeles lapidary society, June 5, following officers were elected for 1944-45 season: Rolland E. Willis, president; Claude B. Rosenberg, first vice-president; H. Loren Mitchell, second vice-president; Goldie E. Wood, secretary; Melvin E. Gaider, treasurer; Leland Quick, historian.

Walter Resenfeld, scheduled to speak before Long Beach mineralogical society was injured in an auto accident so Dr. John A. Harris showed pictures of a trip to Mexico, including some of Paricutin.

W. L. Mayhew talked about Mt. Lassen district at June potluck dinner meeting of Long Beach mineralogical society. The group is perfecting plans for a mineral show to be held this autumn. Orin Purvis is to be general manager.

June field trip took Searles Lake gem and mineral society members to the summit of Telescope peak. George Pipkin sponsored the hike. Harold Schaafama of the park service acted as guide.

Constitution of Los Angeles mineralogical society provides for sustaining memberships. To be eligible members pay five dollars or more per year, in order to add to the finances of the club without raising the general dues. The society, contrary to usual custom, will continue its regular meetings during summer months.

Outstanding specimens sold at the annual June auction of Los Angeles mineralogical society were: one Death Valley aragonite, one Bingham canyon chalcantite, one Miami, Arizona, chrysocolla, one Bisbee, Arizona, malachite, one Bisbee, Arizona, azurite, one Tintic district Utah energite. The sale of these and many other specimens and minerals put cash in the treasury. Auctioneers were O. C. Smith and William Harriman, Emil Soderberg, clerk, Lelona B. Kopper, cashier.

East Bay mineral society has chosen the following officers to serve from May, 1944, to May, 1945: Orlin J. Bell, president; Robert O. Deidrick, vice-president; Buster E. Sledge, 1438 88th avenue, Oakland 3, secretary; L. J. Hostetter, treasurer; Marjorie Welch, director.

Southwest mineralogists now hold meetings at Harvard playground, 6120 Denker avenue, Los Angeles. Jeane Lippitt, corresponding secretary, reports interesting activities of the club. Monthly field trips have consisted of going to nearby places of interest, such as museums, parks, members' homes, and the beach. They have enlarged their library with books on minerals, gem stones and lapidary work.

Los Angeles mineralogical society has compiled a brief history of the group. Copies will be given to new members to acquaint them with club activities and achievements.

Members of Escondido desert club, at their May meeting, enjoyed several reels of film taken by Mrs. Helen T. Bowles of Ramona, who with her family has traveled widely in New Mexico, Arizona and California. Films featured Indians. Another recent motion picture meeting was devoted to showing of The Covered Wagon, 16mm film, with musical recordings, presented by Perry Stowe. Over 300 persons attended.

Klamath mineral club began its sixth year in April. President Kenneth McLeod and secretary John C. Yadon are serving their second terms in office.

Jade from Lander, Wyoming, is deservedly becoming well known and popular. The Lander nephrite is of excellent color and quality.

GEM MART

ADVERTISING RATE
5c a Word — Minimum \$1.00

Rose Tourmaline in Quartz, \$3.00 to \$7.50 each. Gem Kunzite 75c gram. Specimen Kunzite, \$1.50 to \$20.00 each. Blue gem Tourmaline, 50c to \$3.00 each. Jasper spheres 3 and 6 in., 3 in. Jasper sphere \$10.00; \$25.00 for large Jasper sphere or 3 in. Jade sphere. The Desert Rat's Nest, 2667 E. Colorado St., E. Pasadena, Calif.

CONICALCHALCITE, a basic copper arsenate, grass green, mammillary coatings on quartzite, also solid pieces. Price 50c to \$3.00 depending upon size and quality. W. T. Rogers, 1230 Parkway Avenue, Salt Lake City 5, Utah.

Four Colorado beauties, Fluorite, all shades of purple surrounded by purple crystals. White Quartz blended with Pyrite. White Spar crystals. Barite crystals. All 3x3 or over. Jack the Rockhound, P. O. Box 86, Carbondale, Colo.

PRASE OR CHRYSOPRASE in blue, green or emerald. About 8 in hardness, translucent, polishes to a real GEM. Generous piece \$5.00 and a piece of Cameo grade Onyx equivalent to India's finest thrown in. Small fractured piece 50c postpaid. Some experts classify this Prase as Jade, others as the Emerald. Kenneth J. Hines, San Benito, Calif.

Rock Collectors, Attention! Summer Special—\$1.00 brings you 11 specimens and a polished cabochon! \$5.00 a genuine stone cameo. The Rockologist (Chuckawalla Slim), Garvey Trailer Park, 941 E. Garvey Blvd., Garvey 32P, Calif.

Pink Muscovite on Albite Quartz—Something new for the cabinet. Specimens, 75c to \$4.50. Jay G. Ransom, 3852 Arboleda St., Pasadena 8, Calif.

Idaho-Oregon Arrowheads—Obsidian and black lava, 50c each; agate, jasper, etc., in 4 grades, 50c, 75c, \$1.00, \$1.50. Lynn Crandall, Box 697, Idaho Falls, Idaho.

Agate Jewelry and Oregon Agates: One dollar with ten cents for postage brings you four sawed moss agate slabs in excess of 1/2 inch by 3/4 inch for making cabochons or ring sets. These are quality. E. Lee Sigfrit, 211 Congress, Bend, Oregon.

Minerals, Fossils, Gems, Stamps, Coins, Pistols, Glass, Bills, Indian Relics, Bead Work. Catalogue 5c. Cowboy Lemley Curio Store, Las Cruces, New Mexico.

INDIAN RELICS, Curios, Coins, Minerals, Books, Old Buttons, Old Glass, Old West Photos, Weapons, Catalog 5c. Lemley Antique Store, Osborne, Kansas.

Quartz Crystals of the finest water clear quality to be had. Single points from 10c to \$10.00 each. Groups from 50c to \$50.00 each. Outstanding specimens in groups for cabinets and advanced collectors from \$5.00 up. Several bushels of broken and blemished points, mixed quality, fine for rock gardens at \$12.50 per bu. Good quality blemished points, all sizes at \$25.00 per bu. Wavelite 50c per lb. Novaculite, the beautiful gem material, in white, jet black, salmon pink, cream and blended material at 50c per lb. Or six lbs. assorted colors for \$2.50. Delivery charges extra and satisfaction or money back on every item I ship. J. L. Davis, 303 Ward Ave., Hot Springs, Ark.

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Montana Moss Agates in the rough for gem cutting, \$1.00 per lb. plus postage. Elliott's Gem Shop, 26 Jergins Arcade, Long Beach 2, Calif.

50 assorted ring stones, including genuine and synthetic, \$7.50. Genuine Zircons, blue or white, 3 for \$3.75. Twelve genuine Cameos or Opals, \$2.50. B. Lowe, Box 311, St. Louis 7, Mo.

\$2.50 brings you prepaid six rare and beautiful crystallized Arizona minerals. Vanadinite, Dioptase, Wulfenite, Willemite, Chrysocolla, Azurite. Specimens 1 1/2 x 2 or larger. Wiener Mineral Co., Box 509, Tucson, Arizona.

100 Jewelry Stones removed from rings, etc., \$2.00. 12 articles of Antique Jewelry, rings, pins, etc., \$3.00. B. Lowe, Box 311, St. Louis 1, Missouri.

Choice Palm Root—Full of eyes showing root and trunk structure. Very colorful. Sliced for Cabochons. 25 cents per square inch. Satisfaction guaranteed. GASKILL, 400 North Muscatel, San Gabriel, Calif.

Swisher's rocks, minerals and petrified woods. Island corals, shells, shell costume jewelry, fine copper minerals from Bisbee, Arizona. Fine quartz crystals from Arkansas. Also fine line of Art Figurines. Swisher's, 5234 So. Broadway, Los Angeles 37, California.

DESERT QUIZ ANSWERS

Questions on page 22

- 1—Yucca. 2—Death Valley.
- 3—Combination church and lodge of Penitente Brotherhood.
- 4—Applies to plants adapted, in various ways, to dry climate.
- 5—Pyrope is type of garnet, deep red to black, sometimes improperly sold as "Cape Ruby," "Arizona Ruby," "Ruby Garnet."
- 6—Geronimo was born near Janos, state of Chihuahua, Mexico.
- 7—Muller. 8—Onate. 9—Prionus.
- 10—Hohokam, sometimes translated as "People Who Are Gone."
- 11—Grand Canyon begins at mouth of Little Colorado and ends at Grand Wash, 217 1/2 miles away.
- 12—Colorado river explorers.
- 13—Wm. Hickling Prescott, author of "Conquest of Mexico."
- 14—Founder of Museum of Navajo Ceremonial Art, in Santa Fe.
- 15—Cerium oxide. 16—Outcrop.
- 17—Archeologist. 18—John Evans.
- 19—Red shale. 20—Lumholtz.

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In his last bulletin of the season W. Scott Lewis offers to accept perfect sea shells in exchange for mineral specimens.

Gordon Funk described geology of Griffith park region to the 40 members of Los Angeles mineralogical society on June field trip to the bird sanctuary.

Dr. F. F. Hintz, department of geology, University of Utah, spoke on the fossil fields of Utah at the final summer meeting, June 6, of the Mineralogical Society of Utah. Specimens of celestite from southern Utah were displayed for sale after the meeting. Half the proceeds went to the society.

Francis J. Sperisen gave hints on cutting and polishing gems and discussed outstanding books on minerals at June 1 meeting of East Bay mineral society. Leland S. Chapman talked on desert mines, minerals and districts at the June 22 meeting. This was the last session of the club for this season.

Nebraska mineralogy and gem club elected the following officers at their annual meeting: E. J. Weyrich, president; Dan H. Dunham, vice-president; Bertha C. Minardi, secretary-treasurer; J. L. Freeman, Edward F. Andrews, A. B. Nau, Sharpe Osmundson, board members. The secretary's address is 5715 N. 30, Omaha, Nebraska.

New Jersey mineralogical society has chosen the following officers for 1944: Joseph D'Agostino, president; H. E. Millson, vice-president; Dr. H. P. Walther, vice-president; G. R. Stilwell, secretary; Miss E. Hensel, treasurer; A. A. Surina, librarian; Dr. A. C. Hawkins, curator.

Albuquerque gem and mineral club has voted to change meeting dates from second Tuesdays to first and third Tuesdays. About 30 members attended the May meeting, held in the geology laboratory of the university. Bill Marion exhibited a collection of cut and polished jade. There was also a display of agates from the Big Bend country of Texas. A sound film on Arizona, its mineral resources and scenic wonders was shown.

There are five stars in the service flag of Los Angeles mineralogical society.

Fluorescent minerals were studied by Searles Lake gem and mineral society at their annual potluck supper held June 21 in Pillott's patio, Valley Wells. Several members furnished fluorescent lamps to use on known and suspected specimens. Swapping was brisk.

Jay Wilson gave a travel talk on collecting mineral specimens in the middle west at June meeting of Orange Belt mineralogical society. Forty members and guests were present. July meeting was to be a covered dish dinner in Peris Hill park, San Bernardino.

Mojave mineralogical society visited the Monolith Portland cement company plant, May 21. The party was divided into small groups, each with a guide, for the tour through the plant.

Peter W. Burk has been elected secretary of Orange Belt mineralogical society to succeed Doris P. Rowland who has resigned because of ill health.

Robert W. Bowman, army nurse, donated a first aid kit to Searles Lake gem and mineral society. It is an essential piece of equipment not before owned by the club, but one which they all sincerely hope they'll never need.

Cogitations . . .

Of a Rockhound
By LOUISE EATON

Rockhounds is jus' about the most thotful 'n considerate folks there is. Whenever they has to ('r gets to) travel, they writes frens to see if there's any rocks in the vicinity that the frens would like, 'r errants they can perform for 'um. Even if the frens says no thank you, 'twould be too much bother for you, they brings 'um interestin' specimens enyhow. The recipients is pleased 'n appreciative too: nice fresh rocks is always more than welcome.

Some wartime measures, such as plastic gadgets, is not bad, but practically everyone'll be glad when paper gets unscarce again, 'n no one writes letters on both sides of tissue thin paper. It sure is hard to read.

Carbondale, Colorado

Dear Desert:

I've just had a rugged but a nice trip and have many colorful rocks. I am crazy about the black crystals that we found on Mt. Sofris, the most beautiful clusters of smoky quartz crystals I've ever met.

We found them in a cave, a small opening only about three feet high being the only entrance. After one enters the main cave, the galleries open out to nearly 100 feet and sometimes even more. The walls of these caverns are lined with crystals ranging in size from one half inch to some that weigh possibly two or three tons.

We penetrated this cave about 2,000 feet, at which point the crystals seem to change to green or blue. This is really a beautiful sight. We intend to explore further next week. I would not advise rockhounds to get all hopped up over this find, as it is a rugged trip, above timber line, at about the 13,000-foot level. Nevertheless, I shall have some of these crystals on the market before long.

JACK O'BRIEN

Mrs. Josie Bishop entertained Searles Lake gem and mineral society on their May field trip. Mrs. Bishop lives near Cantil, high on the mesa between Dove springs and Jawbone canyon where she has a carnotite deposit.

San Fernando group has added gem to its title and is now known as "San Fernando valley mineral and gem society." Their secretary is Verna Mann, 430 N. Parish place, Burbank, California.

A 12-page 8 1/2 x 11 folder containing two articles of value to tungsten prospectors and miners is available free on inquiry to Ultra-Violet Products, Inc., 5205 Santa Monica Blvd., Los Angeles 27, California. They contain information on scheelite prospecting methods, qualitative and quantitative analyses, mine sorting, and other related subjects.

Frank Shaw, one-time mayor of Los Angeles, now a director of California mines incorporated, is directing complete surveys of the talc deposits of the region around Porterville and Lindsay, California. In order to explore the quality and quantity of the talc in this area, he has had a shaft driven into the deposit, but has not yet reported to the general public.

TURQUOISE . . .

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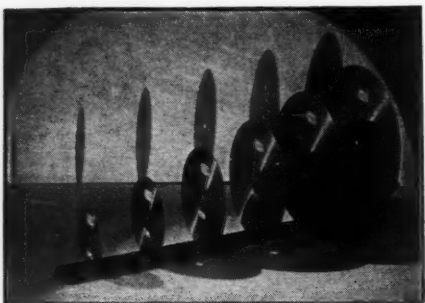
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and polishing equipment. Leland Quick, who conducts this department, is former president of Los Angeles Lapidary society. He will be glad to answer questions in connection with your lapidary work. Queries should be addressed to Desert Magazine, El Centro, Calif.

By LELANDE QUICK

People tell me that in the old days, when traveling to Europe just for pleasure was the vogue, that the greatest thrill of the whole trip was sighting the statue of Liberty as they came home. I can understand what they mean for after a six weeks' coast to coast and Great Lakes to the Gulf business trip, with all the travail of present day travel, my heart did a flip flop when I saw the first Joshua tree in the Arizona desert. After seeing the lush greenery of Virginia and Kentucky, the marvelous farms of Illinois and Indiana and the cotton fields of Oklahoma and Texas for weeks, it seemed sweet peace to see the deserts again. But folks on the train referred to them as "barren." Poor people!

It took another trip to the Field Museum to arouse my latent resentment at the treatment of gem displays in the Pacific coast museums. I know that it takes a Croesus to leave gems of the value of the Morgan collection in the Metropolitan Museum and the wonderful display in the Hall of Gems in the Field Museum, but why can't the available materials of such a great gem state be given more prominence in California museums? The museum at San Francisco has developed a splendid section on native materials but it is largely the work of one man who has made it a labor of love—Billy Pitts, many times referred to as the "Dean of the Amateur Gem Cutters." Most of the material in the San Francisco display has been cut by Pitts in a lapidary shop that the museum maintains for him. The Los Angeles museums both have displays of cabochon materials hidden away in dark alcoves with very poor light so that they cannot be seen to advantage and if you stand and observe, nine patrons out of ten will walk past the cases with never a glance. However, they all stop in the sections where the following items are well displayed—Mary Pickford's curls, Charlie Chaplin's shoes, Lon Chaney's teeth, Dorothy Lamour's sarong, Harold Lloyd's goggles and Marie Dressler's sweater.

Now these are all legitimate items of interest but it seems to me that gems, especially those cut from our native materials, should be given an equal break with old shoes and sarongs. In museums all over the world there are magnificent specimens of California tourmaline, topaz and kunzite but none of our California museums contain any crystal or mineral specimen displays that can approach those in the east. If our museums cannot be as large it would seem that at least the mineral displays could be as good. With more mineral and gem societies than any other state it would seem to be a fitting program for them to gather more representative displays of gems and minerals and see that they get into the museums with proper space and lighting. The museums would probably give gems and minerals a better break if the collectors gave them one. Look what china collectors and doll and button collectors do for museums aside from the real art patrons.

The Field Museum in Chicago has inaugurated a marvelous idea. After seeing the gems on display you may purchase gem materials in the rough for cutting or souvenirs and they offer materials at unbelievable prices. For instance, they offer a piece of malachite for a quarter that could not be bought from any gem dealer's display I ever saw for less than a dollar. Yes, I know the city pays the overhead; this is no criticism of the dealers. They also offer for sale the greatest book I have ever seen on agate and their agate display is a treat indeed, although it contains little American material. I

This page of Desert Magazine is for those who have, or aspire to have, their own gem cutting equipment. Leland Quick, who conducts this department, is former president of Los Angeles Lapidary society. He will be glad to answer questions in connection with your lapidary work. Queries should be addressed to Desert Magazine, El Centro, Calif.

noticed that the few Montana moss agates drew great attention and I wondered what a case of Nipomo or Horse Canyon stuff would do, or a case of Chocolate Mountain geodes.

In Chicago I went to see R. Bensabott who claims to have the greatest collection of figures carved from gem materials. I will not dispute that for it is probably true. He has more figures carved from carnelian alone than Gump of San Francisco has in all materials. If you collect such things don't miss Bensabott's.

In June Desert Magazine I mentioned that groups in the Glendale-Burbank and Westwood-Beverly Hills area had petitioned my aid in organizing lapidary societies there and I requested anyone interested in learning the art, even if you have no equipment, to drop me a card in care of Desert Magazine. Many cards have come to me and I again request cards immediately upon publication of this item so that I can notify you when organization meetings will take place in August. I repeat that I have no interest in joining these societies and I hope no one will withdraw membership from existing societies to enter the new ones.

With this issue Amateur Gem Cutter begins its third year and I will repeat what I said just a year ago. It has been a pleasant stint and it has taught me very much. The greatest pleasure has been the steady flow of letters that have come to me from all over the country and the new friends this correspondence has brought me. Much has happened in the past two years and much will happen in the next two, but the peaceful calm deserts maintain their awesome silence with always as many rocks—but fewer cans and bottles. This writing of gems every month in these times, with the necessary shackling of field trips, becomes a continual whistling in the dark but each month is a month nearer the restoration of "the pursuit of happiness." The well running suddenly dry, temporarily, will increase our thirst for the desert with its "sermons in stone."

There is a lot of talk from time to time about America becoming the gem cutting center of the world because many of the cutters are refugees here. Cutting and mounting of gems will become a great industry here, but I doubt that America will ever take the place of Idar in the preparation of ornamental gem materials because of the lack of knowledge of coloring materials. Next month I will begin giving complete instructions for the coloring of agates as it is done in the Idar district of Germany, giving one color each month.

In Chicago I met an official of the company that has developed the manufacture of boules of synthetic ruby and sapphire for use in industrial gems and I was told that the cost of manufacture is but three cents a carat. This should be a good break for the amateur gem cutter who does faceting but I was told that the jewelers are having nightmares over what it may do to the sale of precious stones.

DID YOU KNOW . . .

- Carnelian was used for common implements long before it was used in jewelry.
- Cleopatra was a lavish user of carnelian beads.
- Napoleon carried an Egyptian carnelian seal as a charm.



By RANDALL HENDERSON

WITH THE ALLIED FORCES IN AFRICA—Lieutenant Paul Thomasset of the French garrison here had been telling us about some lakes of fresh water where we could catch fish—somewhere among the rocky hills to the west of our oasis. From his description, our guess was catfish.

But who would expect to find catfish in the middle of the Sahara desert! Fishermen's tales are one of the great indoor sports in America, we assured Paul, but no one ever believes them. When he saw that we doubted his story, he offered to take us on a fishing trip.

So the party was organized: Thomasset and his native house-boy Query, Lieut. Bruce Cabot of Hollywood, and myself. The distance was 11 miles and we were to travel by jeep to the next oasis, eight miles away, and the rest of the distance by camel. The last three miles, we were told, were too rough for a jeep.

Paul sent word ahead to have the camels ready, and we left late Saturday afternoon. There was no road. We alternately mushed through sand dunes and across flats covered with huge cobblestones. No one would think of undertaking such a trip in any vehicle short of a jeep. It finally became too rugged even for our sturdy little war-wagon. A mile and a half from the oasis it gave a final gasp and quit.

Our French guide solved the dilemma by sending Query ahead on foot to get the camels. While we waited, Paul hailed a couple of passing Arabs and asked them to come and make tea for us. Until now, I thought the British were the champion tea drinkers of the world. But my tour of duty on the Sahara has convinced me that the English people acquired the tea habit from the Arabs—and are still novices in the art of brewing and drinking the beverage.

Tea is a ritual among these turbaned desert dwellers. No caravan ever would start across the Sahara without its teapots and glasses and sugar and mint leaves. Since the war came to Africa the price of tea has skyrocketed, but an Arab will go two days without food if necessary to save money for a few ounces of tea leaves. Four or five or six times a day they stop for tea. And it always is prepared and served according to a time-honored procedure.

The properties for a tea party on this desert are two small kettles, one for water and the other for tea, and a long cloth "stocking" with tea, brick sugar and mint leaves, separated by knots to keep the ingredients from becoming mixed. Or the tea and sugar and mint leaves may be in separate goatskin pouches. The drink is served in small glasses, never in cups.

The desert may be as barren as a salt flat in Utah, but an Arab always can find a few leaves and twigs to build a fire. While the water is heating, the tea leaves are carefully measured according to the number of persons present. They know in advance how much each will drink, and never a leaf is wasted. The tea goes into the pot. Then the brick of sugar is broken with a

little hammer especially made for that purpose. Tea and sugar just about fill the pot. The Arabs like it sweet. Finally a pinch of mint leaves is added.

Both indoors and out, the tea is prepared with the master of ceremonies sitting cross-legged on the ground with the glasses in an orderly row in front of him. The syrupy tea is mixed by pouring into one of the glasses and back into the pot. After the proper amount of mixing, the MC pours a few drops in a glass for sampling. He has made tea thousands of times exactly this way and knows to the last leaf and the last grain of sugar whether it is properly prepared. Nevertheless, it must be tasted, and if a distinguished guest is present he also is invited to test it.

Then the tea is poured—with a dexterity that would make the ace soda jerk in the home town drug store look like an awkward goof. There is a graceful flourish, and from the spout two or three feet in the air a tiny stream of tea emerges and scores a perfect bullseye in the center of the glass on the ground with never a drop lost. The whole ritual is done with professional skill that always leaves me dumb with amazement. Men and women, boys and girls—all are masters of the art of making tea. The Arab whom Paul drafted for this tea party beside the crippled jeep was a villainous-looking fellow with matted hair and dirty rags and tatters on his back. But when he started making tea he became an artist.

Three glasses are served to each guest—always. It is discourteous to drink less. It would be a sacrilege to ask for more. And when the Arab had finished serving, he washed the glasses with a few drops of water in the kettle, then threw his carbine over his shoulder and continued his journey toward the next oasis.

* * *

The sun was sinking behind the distant brown hills when the camels and their drivers arrived. Our food and canteens and blankets were packed in saddlebags, and the camels were brought to the ground with a soft-voiced "sh-sh-sh-sh" and a gentle tug on the leather rein that is attached to a ring in their nostrils.

Cabot and I each were given a baton, with instructions for guiding the animals by tapping them on the neck—the left side to turn them to the right, and vice versa. We climbed into the pocket-saddles, and hung on for dear life while the beasts got to their feet. It is a ticklish moment for a novice. There are neither stirrups nor saddle horn to cling to. Starting with his belly resting on the sand, the camel first rises on his front knees—and that gives the rider a sudden pitch backward. Then his rump comes up as he straightens out those long hind legs—and the rider lurches forward. Finally the camel's shoulders come up as he straightens out his front legs. And there you are—perched on the peak of a one-hump camel, wondering where the devil you will land if he starts to buck.

But camels do not buck. They have a more docile way of expressing their dislike for humans in general and the rider in particular. From the time the drivers start putting on the saddles, they groan and grumble. I was quite sympathetic at first. I thought the drivers were cinching them up too tightly. But later I concluded that their wails and complaints were mostly bluff—or habit.

* * *

It was one of those perfect moonlight nights on the desert. A cool spring breeze was blowing and there was no sound except the soft impact of padded feet in the sand. We rode single file, through an oasis and then over drifted sand dunes. Once we stopped by some thatched huts, and the nomads who lived there brought us each a bowl of goat's milk.

We crossed a wide sandy valley and started up a rocky arroyo that soon became a cliff-walled canyon as the mountains closed in. When the boulders became too big and numerous we dismounted and led our animals. While I am not yet convinced that Nature designed a camel's back for riding purposes, I would award this beast all the blue ribbons for sure-footedness in traveling over and among the rocks. No one ever would think of taking a shod horse or mule over the boulders along that route, and a burro with packs would have become hopelessly wedged between the huge rocks on both sides. But the camels with their pad-like feet and long legs marched along without a slip or stumble.

Despite the awkward contour of a camel's back, the Arabs have designed a pack saddle that for simplicity and utility beats anything I ever saw on an American mule. Perhaps that is because the Arabs had been working at it several centuries before dude ranches were discovered.

* * *

It was 10 o'clock when we reached the first of the "lakes" described by the French lieutenant. I was not disappointed to find that they simply were natural tanks in the floor of the canyon—the tinajas of the American desert. Knowing the aridity of this country and the hundreds of miles of level sandy terrain that lay between this oasis and the nearest snow-capped peaks, it was inconceivable that there should be fresh water lakes other than from the storage of storm water.

They were lovely pools of cool sweet water, as I was to discover the next day when we visited four of them. While I was barbecuing some steaks which had arrived by plane before we left camp earlier in the day, the camel drivers unpacked their animals and brought out the teapots. There was a fringe of date palms around the pool and dry fronds provided the necessary firewood.

When we had sipped our three glasses of tea we stretched out on the sheepskins which were our beds for the night. The Arabs had spread them on the sand, with saddle and kit-bag at the head of each skin, just as a Camel Corps trooper would bed down for the night. The moon passed behind the towering cliff wall above, a gentle breeze came down the canyon and I lay there under the Sahara stars with the same feeling of relaxation and peace with the world I have experienced many times on that desert which is my home. The war seemed much farther away than the planet Mars.

We were up before sunrise and Query already was brewing our early morning tea. Then I caught my first glimpse of fish on the Sahara desert—and they truly resembled catfish. Scores of them, from eight inches to a foot long, were swimming in the pool, making ripples on the surface as they came up for air—or whatever it is that causes a catfish to stick its nose out of the water.

But we were to do our fishing farther up the canyon where the pools were deeper, Paul said. The camels were led to the water's edge where they drank their weekly ration of a half barrel each, then they were hobbled and turned loose to graze on the sparse vegetation that grew around the waterhole. The beasts passed

up a little patch of grass and began biting twigs from the thorniest Acacia bush I ever have seen. The thorns were an inch long, and the camels must have shoe-leather lining in their mouths the way they went after them.

It was a mile's hike over a jumble of rocks to the upper tanks. The camels could have made it, but we decided to walk for the exercise. There was no trail to follow. We simply picked our way where the boulders were smallest. The shattered limestone walls of the canyon reminded me so much of northern Arizona I kept looking in the overhung recesses for evidence of ancient cliff dwellings. However, this Sahara canyon lacked the coloring of Arizona and New Mexico wilderness country. Here the limestone had been burned or varnished a deep brown, and it was only in places where segments of the walls recently had broken off that we saw the reds and tans of the American desert. Also, I missed the juniper and piñon and sage and other less common plants which add both color and character to the canyons in the Navajo country. Here the walls were barren, and the silhouette on the skyline above always was rock—never a tree or shrub.

When we arrived at the tinajas we found a French soldier sitting on a rock pulling out fish. He had packed in with camels ahead of us to spend an eight-day furlough in this delightful spot. The largest of the pools was perhaps 120 feet long and 30 feet wide. Later in the day we dived off the ledges on the side-walls, but were unable to touch bottom.

Many kinds of animals come to these waterholes to drink—gazelle, wild boar, hyena and jackal. In the sand we saw the tracks of a huge cat. The French soldier said it was a tiger—that he had seen it the night before. But obviously there was a flaw in the interpretation of our French-English at that point in the conversation.

Where did these fish come from? How do they survive in pools fed only by occasional storm water—in a region where Arabs abound and food always is scarce? I do not know the answers—nor were the Frenchmen able to offer more than a guess. It is quite certain that Arabs, in this part of the desert at least, do not care for fish meat, although I never have heard of a taboo against them in the Koran. Also it was evident that the cloudbursts in this country are not as frequent or as torrential as in southwestern United States. No fish would live to maturity in the flood torrents that sweep down the canyons at home, uprooting trees and turning the canyon into a churning chaos of boulders.

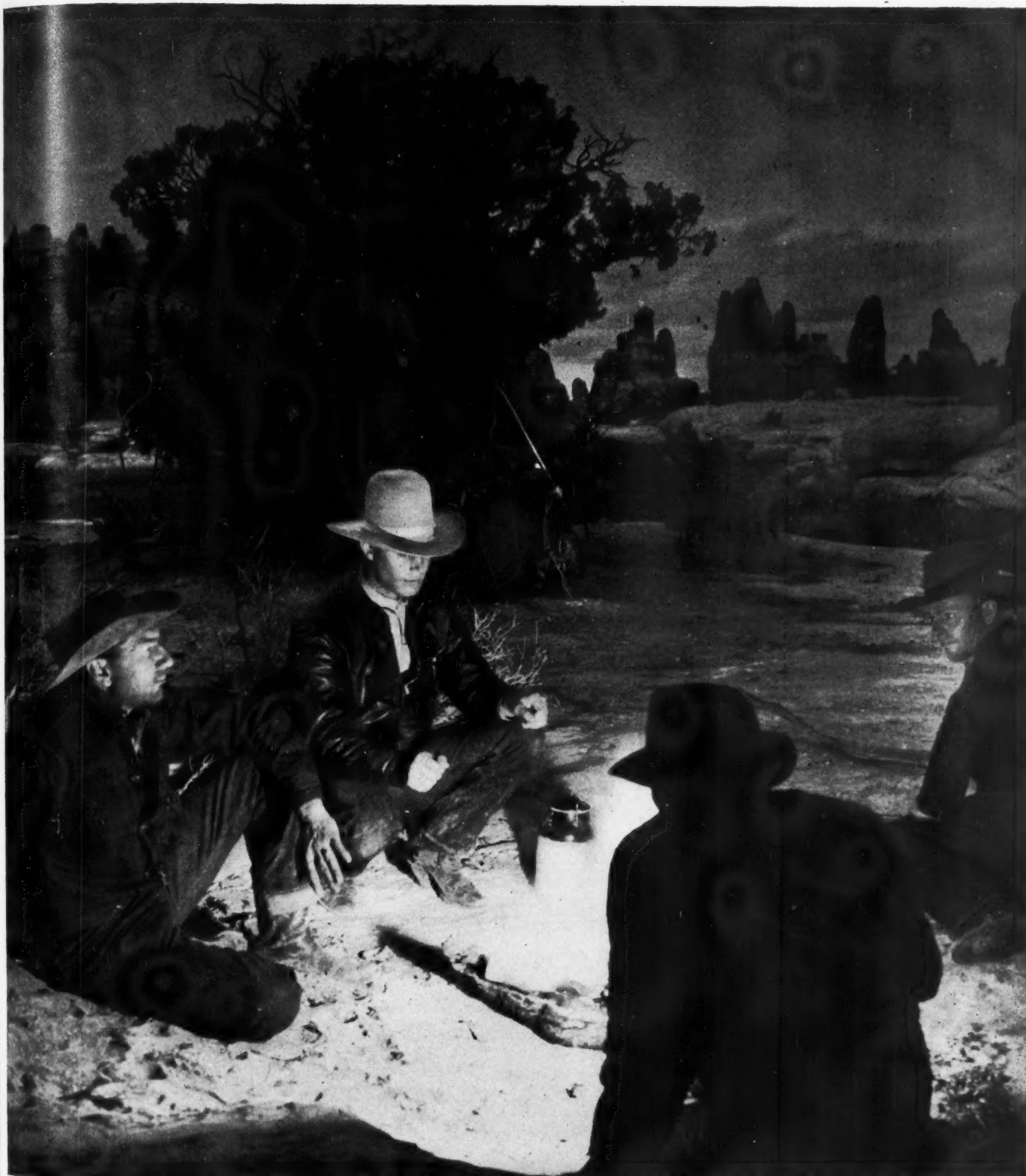
The Sahara may keep its secret. I know only that we had a delicious fish dinner, cooked by Query and served in the shade of a little oasis of native palms that grew just below the pool in which we caught the fish. We hooked three species—one resembling catfish, another like perch, and the third was a pesky little fresh water "sardine" that kept nibbling the bait off our hooks.

Then we had tea—and at midafternoon started the trek back to the home oasis. The camels went through their customary groaning and bellowing. But by now I had little sympathy for them. A beast that will pass up a luscious patch of grass to browse on a thorn tree should not be irritated by the mere tightening of a saddle girth.

A runner had been sent back to our army camp the previous evening to arrange for one of the motor mechanics to come out and repair the jeep—and when we arrived there at the end of our camel journey, it was hitting on all cylinders.

* * *

We apologized to Lieutenant Paul for having doubted his fish story, and thanked him for a delicious variation in our week-after-week routine of canned army rations. The feature of this trip which will remain longest in memory is the rhythmic roll of the saddle as our little caravan trekked across the dunes by moonlight. I suspect that a long day on the upper deck of a camel would become very tiresome to one not accustomed to it. But for a few hours it is a delightful experience.



Campfire on the Utah Range

Photograph by Frank E. O'Brien, Utah state department publicity

This camp site is about three miles east of the confluence of the Colorado and Green rivers in eastern Utah, one of the remotest areas in America. In background are the little-known Needles. The party of five who made this trip—(left to right) W. T. McKinney, Arches national monument custodian, Cy Thornell and Aye Helquist, S-S ranch cowboys, Dimitri Kessell of New York, and Frank E. O'Brien, who took the picture—first traveled

by automobile from Moab 50 miles to the 1,400,000-acre S-S cattle ranch on Indian creek, then 25 miles by truck, another 25 miles by horseback, and the last mile by foot.

The boys have just finished a dinner of vegetable soup, sausage and eggs, sour-dough biscuits, native buffalo-berry jelly, and coffee made from rain water. Near the fire is a jug of newly mixed sour-dough, warming up for next morning's sour-dough biscuits.

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